ECOLOGY AND ENVIRONMENT, INC.,

DALLAS, TEXAS

MEMORANDUM

TO: Keith Bradley, Region VI RPO

FROM: Gene McDonald, FIT Project Manager

THRU: K. H. Malone, Jr., FIT RPM

DATE: October 24, 1986

SUBJ: Sampling Inspection at Fansteel Metals, Muskogee, OK (OK3549)
TDD# R06-8410-02.

The FIT was tasked to conduct a sampling mission at Fansteel Metals, Muskogee, OK, to assess site conditions. The sampling team which consisted of Project Manager G. McDonald, Team Leader Bernard Cousin, Radiological Safety Officer A. Chriss, and Team Members J. Trusley, B. Park, D. Smith, W. Day, L. Landry, C. Flatt and E. Fry conducted the sampling inspection during the period April 7-11, 1986.

Fansteel Metals is one of only three refractory metals manufacturers in the free world. They use naturally occurring uranium and thorium in their process to produce tantalum and niobium pentoxide, metals which are highly resistant to corrosion and heat.

Basically the production embraces raw materials (low level radioactive ore, uranium and thorium) from mine tailings, the elements tantalum and columbium (columbium is an obsolete name for the element niobium, but still referred to as such in the plant process) and solvent extraction. Primary solvents or chemicals used in the extraction of the metals are hydrofluoric acid, sulfuric acid and methyl isobutyl ketone (MIBK). As explained by the Plant Manager, Mr. Pierret, crude columbium is treated with anhydrous ammonia for conversion to niobium pentoxide. The pentoxide is then water washed and calcined. Tantalum is purified from the crude state by contacting with potassium fluoride to produce the potassium salt of tantalum fluoride which is then centrifuged, water washed and dried. The precipitate from this process gives off a radioactive beta count. Other purification steps for the tantalum metal include pulverizing, water wash, potassium hydroxide wash, treatment with hydrochloric and hydrofluoric acids, followed by another water wash and drying. The resultant waste slurry generated by this process contains low level radioativity. This slurry is disposed on site into a series of ponds as described below.

Reviewed 2-10-87

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At present, the plant utilizes nine basins, ponds or lagoons and a landfill for the holding of, or for the treatment of wastes (see map at inclosure 1). Descriptions of the holding areas are listed below.

Pond 1 is an acid wastewater settling pond which is lined with plastic that appears to be stable with no visible significant defects. A past practice has been to dredge material from this pond and to deposit it on site.

Pond 2 is now known as pit 2 or the old landfill area. It is an acid sludge pond which received radioactive slurry deposited prior to 1978 or 1979. The landfill has a plastic cover with sand and clay as its bottom liner. There are visible holes in the plastic cover and some ponding of water was noted on the southeast corner. Radiation readings were recorded on the southwest and southeast corners of this area that are from two to six and half times higher than established background readings obtained from Muskogee. Samples taken from this landfill area are referred to as sample stations 28 and 29 in this report.

Pond 3, the acid residual pond which presently receives radioactive slurry, is lined and equipped with a french drain system which drains to a manhole about 60 to 70 feet in a northeasterly direction from the basin. The manhole is equipped with a pump to return the drainage to Pond #3 or to the plant treatment system. Due to the size of the pond and its banks being lined with plastic, the FIT was unable to approach it to collect a sample. A sample was taken, however, from the system that returns drainage back to the process area. This location is referred to as sample station number 21 in this report.

Pond 4 is a lime neutralized wastewater settling pond. It is equipped with a plastic liner with no visible defects. It is not clear as to when this pond was first put into use, but to date it has never been dredged. EPA Form T2070-3, Potential Hazardous Waste Site, Site Inspection Report, dated October 7, 1981, prepared by former FIT member Gordon Duncan, indicated that this pond also has a french drain system, however this fact could not be confirmed by present site personnel.

Pond 5 is the old basic residue pond that received waste from the lime neutralization process. This pond has no liner, yet it sits on alluvial deposits. As this pond overflowed it would feed Ponds 7, 8 and 9, three other basic residue ponds. Allegedly, Ponds 5 and 7 are by-passed and overflow goes directly to Pond 8 and then Pond 9. It should be recognized however that Ponds 5 and 7 may still occasionally overflow into Ponds 8 and 9, especially after heavy rains. This fact may be significant in relation to radioactivity levels in samples discussed later in this report. The FIT was led to believe that radioactive waste was confined to the process areas and ponds north of Chemical Building "C" and above ground ammonia storage tanks.

Pond 6 is a clarifying pond that feeds outfall number 001 through an effluent monitoring station. As stated above, the overflow waste that goes into these southern ponds is allegedly radioactive free, yet the gross beta count was higher here than in a sample taken at the old landfill, an area known to be radioactive.

Ponds 7, 8 and 9 have already been discussed as being basic residue overflow ponds. The FIT inspectors that conducted a survey of the surrounding area indicated that erosion and drainage paths from the ponds were visible. A soil sample, Station 20, was taken from the base of one drainage path, but due to limited lab space, was not analyzed for radiation, fluorides or ammonia.

Ponds 10, 11 and 12 are inactive process waste ponds which have been closed and covered.

Fansteel has fourteen monitoring wells installed ranging in depth from 9.16 feet to 34.75 feet. Available water in these wells varied from dry holes to less than an eight foot column in monitoring well 18. Attempts were made to sample monitoring wells 2, 4, 5, 7, 12, 15, 18 and 19, however, while wells 18 and 7 had sufficient volume for a complete water set, wells 5 and 15 yielded only enough water for VOAs, an 80 ml volume. The other wells were either dry, inaccessible or could not be located. With the lowest well elevation being set at 491 feet, all others above 501 feet and the bottom of the french drain at 495 feet, it is suspected that a hydrological drawdown by the french drain system greatly influences the presence or absence of water in the wells.

During this inspection, one high hazard aqueous liquid, four high hazard soils, four groundwater, four surface water, eleven surface and subsurface soils and two rinsate water blanks were collected.

SAMPLING RESULTS

Sample station descriptions and analytical results are described below. Results of radioactive analysis will be addressed below, however a separate evaluation of radiation data is also attached as inclosure 6 to this report.

Station 01 - Monitoring well 15 is the westernmost well. This well was able to yield only sufficient water to fill two VOA vials. Carbon disulfide was present in the sample at 5 ppb.

Station 02 - Monitoring well 07 is an upgradient well which is located north of Lagoon 3 and rests on bedrock at an elevation of 505.65 feet. While this elevation is higher than the bottom of the french drain system around Lagoon 3, it is 1.35 feet lower than Lagoon 3. Two unknowns were detected in the organic ABN analysis at a total concentration of 20 ppb. Several inorganics were found in high concentrations; i.e. calcium (23,100 ppb), magnesium (18,700 ppb) and sodium (51,700 ppb). The fluoride level was 2,450 ppb. Radioactive analysis appears normal.

Station 05 - Monitoring well 05 is located immediately east of the old landfill area (pond 2) and had only sufficient water for VOA analysis. One specified hazardous substance, 4-methyl-2-pentanone, was present in the sample at a concentration of 51,000 ppb. The bottom elevation of this well is equal to the bottom of lagoon 3 and is 12.43 feet higher than the bottom of the french drain.

Station 07 - Monitoring well 18 is located south of outfall 001 and NE of the basic residue overflow ponds. The bottom elevation of this well is 502.81 feet, which makes it 4.19 feet lower than lagoon 3, and 7.81 feet higher than the french drain system. This is a downgradient well with slow recharge, but yielded sufficient volume for QA/QC analysis. Three tentatively identified compounds were detected in the sample; i.e. 4-methyl-2-pentanone at 9 ppb, diethyl phthalate at 1 ppb and one unknown ketone at 10 ppb. The inorganic analysis showed arsenic and cadmium exceeding primary drinking water standards at concentrations of 3,100 ppb and 17 ppb respectively. Some other metals are extremely high; i.e. calcium (26,400 ppb), magnesium (38,900 ppb), potassium (583,000 ppb) and sodium (484,000 ppb). Fluoride was present at a concentration of 52,200 ppb. Gross beta radiation was detected at 600 pCi/l ($\pm$ 50) in the sample. U-238, 235 and 234 also showed in the sample, yet are not present in the upgradient water sample.

Station 09 - Downstream water sample from Webber Falls, 100 yards south of bridge on Highway 62. Organic analysis revealed one unknown which was also found in the rinsate blank. While no primary or secondary drinking water standards were exceeded, some metals are very high; i.e. calcium (61,600 ppb), magnesium (16,800 ppb) and sodium (143,000 ppb). These metals were even higher in the upstream sample. No fluorides were detected. Radiation levels appear to be near normal for surface water.

Station 09A - Downstream sediment sample from Webber Falls 100 yards south of bridge on Highway 62. Organic analysis revealed 3 unknowns at a total concentration of 1900 ppb and 1 unknown hydrocarbon at 200 ppb.

Station 10A - Upstream water sample from Webber Falls. It should be noted that two rivers, the Verdigris and Neosho, merge north of this sampling point and feed into Webber Falls/Arkansas River. Organic analysis shows one unknown alkane at 8 ppb. Several metals are high, i.e. calcium (72,600 ppb), magnesium (22,300 ppb) and sodium (253,000 ppb), but none exceed drinking water criteria. Fluoride was present at 1000 ppb. Radiation levels appear to be near normal for surface water.

Station 10B - Upstream sediment from Webber falls, just south of where the Verdigris and Neosho rivers merge. In the organic analysis, 4-methyl-2-pentanone was tentatively identified at 3 ppb, one unknown hydrocarbon at 200 ppb and one unknown at 200 ppb. Fluoride was present at 62 ppm and ammonia at 1030 ppm.

Station 11 - Background soil sample taken from 0" to 3" in depth in an area west of the parking lot. The organic analysis revealed 2 unknowns at a concentration of 500 ppb, 1 unknown hydrocarbon at 600 ppb and 1 unknown carboxylic acid at 300 ppb. Fluoride was present at 274 ppm and ammonia at 49 ppm.

Station 12 - Background soil sample taken from 3" to 6" in depth from the same hole as Station 11 above. The organic analysis revealed 1 unknown compound at 200 ppb, 1 unknown hydrocarbon at 300 ppb and 1 unknown carboxylic acid at 400 ppb. Fluoride was present at 75 ppm and ammonia at 211 ppm.

Station 13A - Water sample from effluent monitoring station outfall 001 located NE of basic residue overflow ponds. Organics present in the sample include; 4-methyl-2-pentanone at 6,200 ppb, isophorone at 2 ppb and 6 unknowns at a total concentration of 534 ppb. ~~The inorganic analysis showed two metals exceeding primary drinking water standards; i.e. arsenic at 3,200 ppb and cadmium at 43 ppb.~~ It should also be pointed out that serveral other metals are extremely high; i.e. calcium (363,000 ppb), potassium (968,000 ppb) and sodium (1,870,000 ppb). Fluoride was present at 36,000 ppb. Radioactive analysis indicates gross beta at 870 pCi/l ($\pm$ 90) is being discharged into the Arkansas River. It is understood that the NPDES allows only 50 pCi/l to be discharged through the effluent outfall.

Station 14 - Soil sample taken at outfall 002. Organic analysis shows fluoranthene at 400 ppb, PCB-1254 (AROCHLOR) at 4,100 ppb, 9 unknowns at a total concentration of 77,000 ppb and 2 unknown hydrocarbons at a total concentration of 5,000 ppb. Eight metals exceed mean ambient background levels and all parameters are higher than background soils collected at the site; i.e. barium (6,900 ppm), calcium (45,100 ppm), chromium (147 ppm), lead (75 ppm), manganese (926 ppm), mercury (0.4 ppm), sodium (11,300 ppm) and zinc (74 ppm). Fluoride was detected at 369,000 ppm and ammonia at 153 ppm.

Station 15 - Outfall 003 soil sample was taken in drainage course at the Fansteel Metals east fence line. Organic analysis shows PCB-1254 (AROCHLOR) at 410 ppb, four unknowns at a total concentration of 11,800 ppb and four unknown hydrocarbons at a total concentration of 2,300 ppb.

Station 16 - Soil sample taken from P10, lime neutralization pond. In the organic analysis, bis(2-ethylhexyl) phthalate was present at 14,000 ppb, PCB-1242 (AROCHLOR) at 160 ppb, 1 unknown alkane at 40 ppb, 16 unknowns at a total concentration of 53,200 ppb, and 1 unknown ketone at 400 ppb. Seven metals exceed mean ambient background levels and all parameters are higher than background soils collected at the site; i.e. cadmium (5 ppm), calcium (55,300 ppm), chromium (51 ppm), manganese (606 ppm), mercury (0.4 ppm), nickel (19 ppm) and sodium (51,200 ppm). Fluoride was present at 110,000 ppm and ammonia at 2,330 ppm.

Station 17 - Soil sample was taken between lagoon 3 and the acid residue storage area. In the organic analysis, 4-methyl-2-pentanone was present at 25 ppb, bis(2-ethylhexyl) phthalate at 6,600 ppb, PCB-1254 (AROCHLOR) at 800 ppb, 3 unknowns at a total

concentration of 37,000 ppb and 1 unknown hydrocarbon at 4,000 ppb. Thirteen metals exceed mean ambient background levels and all parameters are higher than background soils collected on site; i.e. arsenic (14 ppm), barium (753 ppm), beryllium (21 ppm), cadmium (6.8 ppm), calcium (117,000 ppm), chromium (1,540 ppm), copper (24 ppm), lead (73 ppm), magnesium (9,210 ppm), manganese (2,160 ppm), mercury (0.4 ppm), vanadium (282 ppm) and zinc (57 ppm). Fluoride was present at 150,000 ppm and ammonia at 474 ppm.

Station 18 - Soil sample taken from tank farm area. In the organic analysis PCB-1254 (AROCHLOR) was present at 1,700 ppb, 2 unknowns at a total concentration of 10,000 ppb, 1 unknown hydrocarbon at 2,000 ppb and 1 unknown carboxylic at 2,000 ppb. Six metals exceed mean ambient background levels and all parameters, with the exception of manganese, are higher than background soil samples collected on site; i.e. arsenic (13 ppm), chromium (60 ppm), copper (32 ppm), lead (69 ppm), mercury (1.6 ppm) and zinc (62 ppm). Fluoride was present at 11,300 ppm and ammonia at 411 ppm.

Station 20 - Soil sample taken from drainage path leading from basic residue ponds. In the organic analysis, 1 unknown alkane at 400 ppb, 4 unknowns at a total concentration of 1,500 ppb and 5 unknown hydrocarbons at a total concentration of 1,800 ppb were detected. Only one metal exceeded mean ambient background; i.e. manganese (1000 ppm), yet all parameters are higher than for the background soils collected on site. Fluoride was present at 26,800 ppm and ammonia at 86 ppm.

Station 21 - A high hazard water sample was taken from the french drain system as it returned process waters from the collection basin to the process plant. The metals analysis shows that seven parameters exceed primary or secondary drinking water standards; i.e. arsenic (930 ppb), cadmium (150 ppb); chromium (39,700 ppb), iron (1,700,000 ppb); lead (410 ppb), manganese (442,000 ppb) and zinc (6,360 ppb). Fluoride was present in the sample at 10,300,000 ppb. Radioactive analysis reveals that gross alpha, beta , radium, uranium and thorium series are extremely high, however, this is supposedly a closed system that will not leave the site.

Station 24 - Rinsate water sample taken at the end of sampling for 4/9/86. The organic analysis shows 2 unknowns at a total concentration of 40 ppb. One of these unknowns, at 10 ppb, was not found in any other sample and should therefore be disregarded. The other at 30 ppb was found at Stations 9 and 28 at 20 ppb and 10 ppb respectively, and therefore should be disregarded at those stations. Fluoride was present in the sample at 630 ppb. Ammonia was not detected.

Station 25 - Rinsate water sample taken on 4/11/86 at the completion of the sampling mission. The organic analysis revealed 1,1,1-

trichloroethane present at 7 ppb and one unknown at 10 ppb. These should be discounted since they were not present in any other sample.

Station 26 - A radioactive soil sample was taken from the area midpoint of the service building and south fence line where radiation instruments read up to 1.2 mr/hr. Radioactive analysis indicates that all parameters, i.e. gross alpha, gross beta, radium series, uranium series, thorium series, and several metals are higher than in soil samples taken from the radioactive landfill (Stations 28 & 29). The area of this sample may have been used for above ground storage of drums and equipment, thereby spreading the contamination to this area. There have never been any lagoons, ponds, pits, trenches, etc. on this side of the plant, therefore the contamination should be localized and on the surface only.

Station 27 - A radioactive soil sample was taken from a drainage path at the tailing chute where radiation instruments read up to 0.9 mr/hr. As could be expected, this being part of the process area, the sample is more radioactive than any other. The gross alpha and to a lesser degree, gross beta, present a potential environmental problem. Although workers are aware of radioactive materials being present and take the necessary precautions, the winds could very well carry alpha and beta particles off-site. Certainly the drainage path itself lends a route for off-site migration.

Station 28 - A radioactive soil sample was taken from the southeast corner of the landfill where radiation instruments read up to 0.1 mr/hr. This is a covered landfill (plastic liner, soil and seeded), yet readings for all radioactive series, to include gross alpha and gross beta, were high. There was also standing water at this location which could easily carry contaminants off-site. A surface water sample was taken from the southeast corner of the old landfill along with the soil sample mentioned above. The organic analysis shows 1 unknown at 10 ppb. The metals analysis shows 1 parameter as exceeding primary drinking water standards; i.e. chromium at 60 ppb. Noteworthy is the fact that cobalt and selenium is present in only two samples, here and in the french drain system. Also of interest is the potassium and sodium concentrations found in the sample; i.e. potassium at 891,000 ppb and sodium at 1,540,000 ppb. Fluoride was present at 38,000 ppb and ammonia is noted at 14,200 ppb, even though duplicate analysis is not within control limits. The radioactive analysis for this sample closely parallels that of monitoring well 18, just to the south and downgradient. Radiation levels, when compared to upstream surface waters, appear relatively high.

Station 29 - A radioactive soil sample was taken from the southwest corner of the old landfill, where radiation instruments registered 0.2 mr/hr. Supposedly, the cover is deeper in this corner and

there was no ponding of water. At any rate the radioactive levels are much lower than those found on the southeast corner.

A full evaluation of Fansteel radiation data is attached as inclosure 6. It must be pointed out that the intent of this sampling mission was to determine the extent of chemical hazards and to determine if radiation was present in areas prone to off site migration. It was determined that a chemical groundwater problem exists and radiation is present in migrational paths. The next logical step would be to determine the extent of both of these problems. Recommendations for further actions are discussed below.

SUMMARY

PCB-1254 (AROCHLOR) was detected in outfalls 002 and 003 soil samples. This same compound was also found at two on-site locations, Stations 17 and 20. There are 12 tentatively identified compounds in the sample taken at outfall 002 at a total concentration of 83,000 ppm. Most of these compounds are unknown hydrocarbons, and while the CAS# scan class differs, 21 tentatively identified compounds (of which 13 are unknown hydrocarbons) were detected in the soil sample taken at Station 16, the total concentration for the 21 compounds being 54,240 ppm. Also Station 20, a drainage path, had 13 tentatively identified compounds at a total concentration of 3,772 ppm. Only one unknown hydrocarbon was present in background soil samples, so it is apparent that contaminants detected at the two outfalls and in the drainage path south of the lagoons is attributable to the site.

Metals are also substantially higher at outfall 002 and Station 20 (drainage path), than in the background soil samples. Metals found in on-site soil samples from the tank farm (Station 18), pond 10 area (Station 16) and between lagoon 3 and acid residue storage area (Station 17) are from 10 to 100 times higher than background soil samples. Some of the more toxic metals i.e. arsenic, beryllium, cadmium and nickel are not found at all in other than these three samples.

Analytical results show that surface and groundwater, too, may be contaminated. Arsenic was found at a concentration of 40 to 64 times higher respectively than primary drinking water criteria in monitoring well 18 (Station 7), surface at SE corner of old landfill, and outfall 001. Arsenic was not detected in the upgradient well at all. Cadmium and chromium also exceeded primary drinking water criteria from 1.5 to 4 times the standard. A concern is also raised over a specified hazardous substance, 4-methyl-2-pentanone, being present in monitoring well 5 (Station 5) at a concentration of 51,000 ppb. This same substance is used as a primary solvent in the extraction process for metals.

Ammonia levels are extremely high at Stations 13, 21 and 28. Since ammonia is used to treat crude columbium (niobium) for conversion to niobium pentoxide, the elevated levels may be of concern when considering that Station 13 is the NPDES permitted outfall to the Arkansas River.

In agreement with Fansteel, FIT was to take photos at sampling points only.

Due to camera failure, the roll of film used was torn and had to be destroyed. As a result, no photos are available of this site.

RECOMMENDATIONS

The Fansteel Metals site should be approached as having some potential long range problems requiring an extensive investigation, however, the first logical step is to implement actions to determine whether the site will rank under the MITRE Hazard Ranking System (HRS). The seven recommedations listed at inclosure 6 (analysis of radiological data) are considered to be valid but should be implemented as follow on work only if the site ranks. In view of the above, the following actions are currently recommended by FIT.

1. Background groundwater samples and additional on-site monitoring well samples will be required to be taken to document an observed release to groundwater.

2. Surface water samples from drainage paths and at the point of entry into the Arkansas River should be collected to support an observed release. This may entail starting at the Arkansas River and tracing drainage paths back to their source; collecting samples in each path at selected points.

3. In order to document an observed release to surface or groundwater, pits and lagoons should be sampled.

4. Known areas of radioactive contamination should be sampled in order to support an observed release to ground/surface waters. This includes the landfill, lagoons and area behind the service building.

5. At least three soil samples should be collected offsite to enhance background control.

6. All samples should be analyzed for both chemical and radioactive compounds.

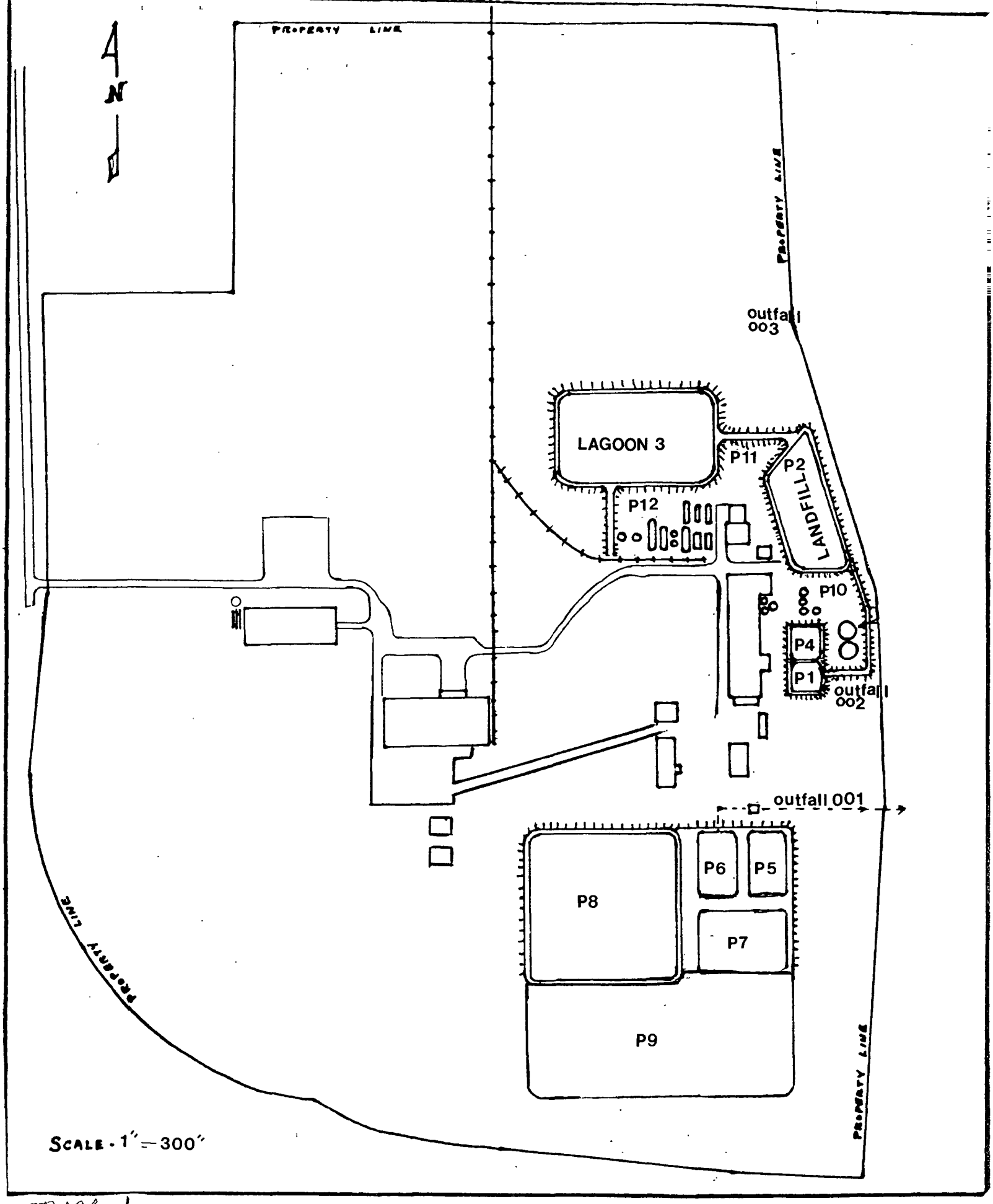
7. The HNu photoionizer should be used to document an observed air release to off-site.

Fansteel was inspected in April, 1986, to determine its potential for environmental hazards. In that regards, contamination has been documented in a sufficient number of samples to warrant additional sampling. Whereas the first mission was to identify the potential for release, further FIT efforts are required to document observed releases with necessary background controls to determine if the site will rank under the MITRE Hazard Ranking System.

INCLOSURES

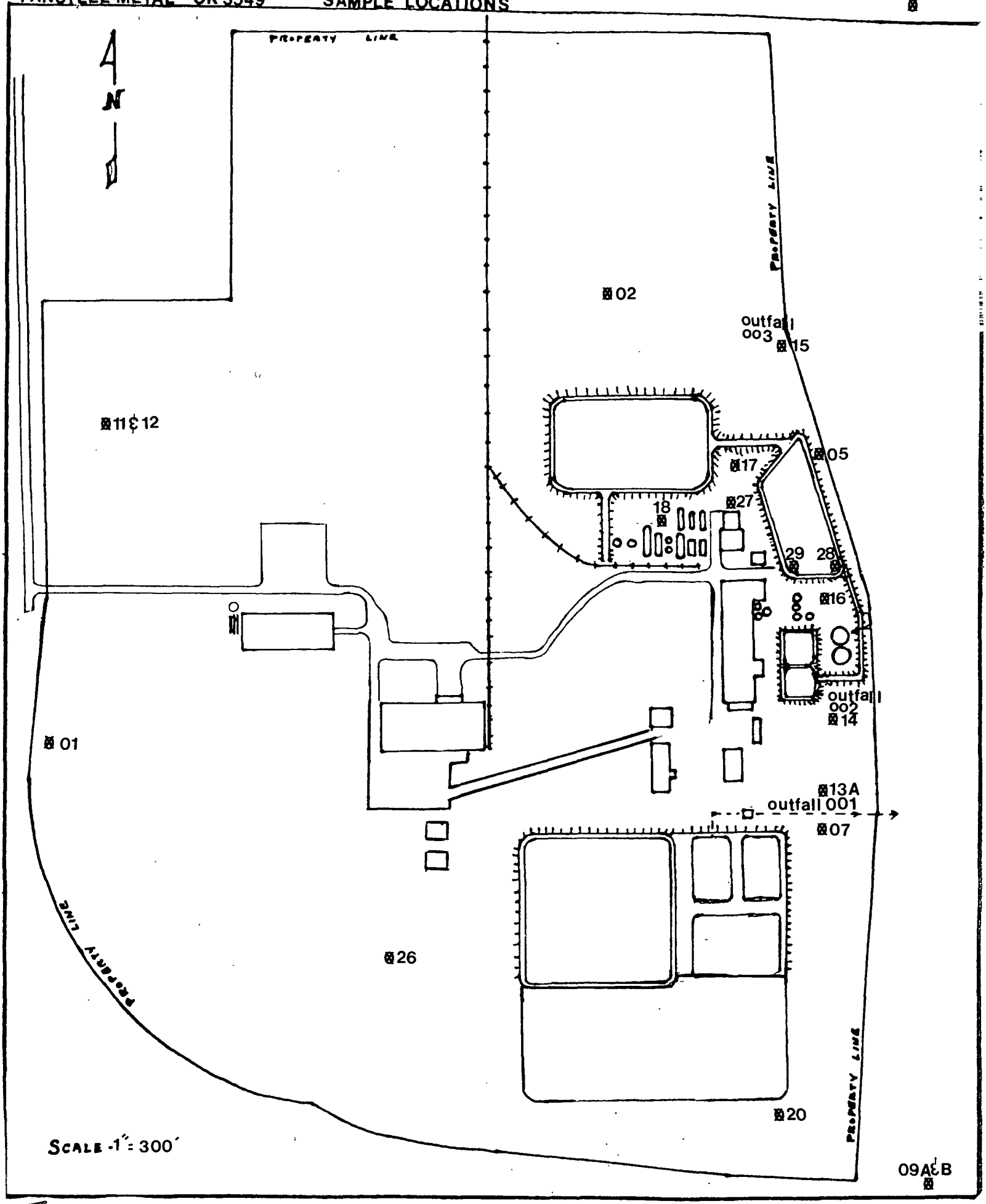
1. Map of site layout (ponds, lagoons, etc.)
2. Sample locations.
3. Analytical data summary sheets.
4. Shipping and control documents.
5. Receipt for samples.
6. Evaluation of radiological data.

FANSTEEL METAL OK 3549 MAP OF LAGOON, BASINS, PONDS AND LANDFILL



INCL 1

FANSTEEL METAL OK 3549 SAMPLE LOCATIONS



INCL 2

FANSTEEL METALS

OK 3549

Analytical results for fluoride and ammonias:

WATER SAMPLES: Reported in ppb

Sta. #	TR #	Fluoride	Ammonias
02	MFD 124	2450	500*
07	MFD 129	52,200	1200*
09	MFD 131	ND	470*
10	MFD 132	1000	1900*
13	MFD 135	36,000	196,000*
21 (HH)	MF 5243	10,300,000	121,000R
24	MFD 144	630	ND
25	MFD 145	ND	ND
28	MFD 126	38,000	14,200*

SOIL SAMPLES: Reported in ppm

09	MFD 125	47R	148R
10	MFD 147	62	1030
11	MFD 133	274	49
12	MFD 134	75	211
14	MFD 137	369,000	153
15	MFD 138	746	60
16	MFD 139	110,000	2330
17	MFD 140	150,000	474
18	MFD 141	11,300	411
20	MFD 143	26,800	86

* - Duplicate analysis is not within control limits

R - Spike sample recovery is not within control limits

INCL 3

Tentatively Identified Compounds (Soil); Values Are Estimates In ppb	Unknown Alkane	Unknown	Unknown Ketone	Unknown Hydrocarbon	Unknown Carboxylic Acid	NOTES
9A FC 136		1900 ppb(3)		200 (1)		
11 FC 147		500 (2)		600 (1)	300 (1)	
12 FC 148		200 (1)		300 (1)	400 (1)	
14 FC 150		77,000 (9)		5000 (2)		
15 FC 151		11,800 (4)		2300 (4)		
16 FC 152	40 (1)	53,200 (16)	400 (1)			
17 FC 153		37,000 (3)		4000 (1)		
18 FC 154		10,000 (2)		2000 (1)	2000 (1)	
20 FC 156	400 (1)	1500 (4)		1800 (5)		
10A FC 157		200 (1)		200 (1)		
02 FC 135		20 (2)				
28 FC 137		20 (2)				1 unknown at 10 ppb rejected, because present in rinsate.
5 FC 138						
07 FC 140			10 (1)			
09 FC 142		20 (1)				Discounted because present in rinsate.
10 FC 143	8 (1)					
13A FC 144		534 (6)				
24 FC 145		40 (2)				Disregard because one is not found in other samples and the other has been rejected out of this sample.
25 FC 146		10 (1)				To be discounted since it is not found in any other sample.

RADIATION SAMPLES (± counting error)

SOIL SAMPLES

	F5244	F5245	F5246	F5247
Gross Alpha	2300 ± 100	3300 ± 100	500 ± 50	34 ± 15
Gross Beta	440 ± 20	1100 ± 100	140 ± 10	21 ± 5
Ra-226	120 ± 10	190 ± 10	30 ± 1	1.2 ± 0.2
U-238	100 ± 10	140 ± 10	9.0 ± 1.2	0.88 ± 0.23
U-235	4.2 ± 0.8	6.5 ± 1.1	0.00 ± 0.26	0.00 ± 0.09
U-234	110 ± 10	140 ± 10	8.6 ± 1.2	0.95 ± 0.24
Pb-210	100 ± 10	48 ± 2	23 ± 1	1.0 ± 0.7
Pa-210	90 ± 2	42 ± 2	24 ± 1	1.3 ± 0.2
Th-232	40 ± 2	170 ± 10	17 ± 1	1.1 ± 0.2
Th-230	170 ± 10	200 ± 10	38 ± 2	0.95 ± 0.23
Th-228	39 ± 2	170 ± 10	18 ± 1	1.1 ± 0.3
Th-227	7.3 ± 1.3	13 ± 3	2.5 ± 1.6	0.00 ± 0.01
Ra-228	31 ± 2	170 ± 10	19 ± 2	0.7 ± 0.7
Gamma Spectrometry				
Pb-214	43 ± 1	110 ± 10	17 ± 1	0.66 ± 0.10
Bi-214	51 ± 1	140 ± 10	19 ± 1	0.60 ± 0.14
K-40	5.7 ±1.5	3.3 ± 1.8	16 ± 3	3.5 ± 1.8
Co-60	0.09 ± 0.05	-0.01 ± 0.04	0.19 ± 0.08	0.25 ± 0.08
Pb-212	26 ± 1	130 ± 10	16 ± 1	0.55 ± 0.07
Tl-208	6.0 ± 0.2	45 ± 1	4.2 ± 0.2	0.26 ± 0.06
Cs-137	1.0 ± 0.1	1.9 ± 01	ND	ND
Mn-54	ND	ND	ND	ND
	Unit of analysis pCi/g			
	Mid point, SVC Bldg & Fence STA. 26	Drainage path, tailing chute STA. 27	SE corner of landfill STA. 28	SW corner of landfill STA. 29

RADIATION SAMPLES (± counting error)

WATER SAMPLES

	MFD 126	MFD 131
Gross Alpha	35 ± 55	5 ± 10
Gross Beta	660 ± 70	3 ± 5
Ra-226	1.6 ± 0.3	0.1 ± 0.2
U-238	1.0 ± 0.4	0.4 ± 0.32
U-235	0.06 ± 0.14	0.01 ± 0.12
U-234	0.97 ± 0.51	0.51 ± 0.47
Pb-210	0.4 ± 0.6	0.1 ± 0.7
Po-210	-0.1 ± 0.5	0.1 ± 0.5
Th-232	0.00 ± 0.01	0.02 ± 0.03
Th-230	0.05 ± 0.14	0.13 ± 0.13
Th-228	-0.03 ± 0.18	0.02 ± 0.17
Th-227	-0.09 ± 0.12	-0.09 ± 0.12
Ra-228	0.6 ± 0.7	0.4 ± 0.8
Gamma Spectrometry		
Pb-214	-5 ± 10	19 ± 11
Bi-214	11 ± 19	-15 ± 17
K-40	-170 ± 330	ND
Co-60	11 ± 9	ND
Unit of analysis pCi/l		
	SE corner of landfill pond	Downstream Webber's Falls
	STA. 28	STA. 09

RADIATION SAMPLES (± counting error)

WATER SAMPLES

	F5243
Gross Alpha	4200 ± 400
Gross Beta	2500 ± 100
Ra-226	25 ± 18
U-238	1800 ± 100
U-235	55 ± 14
U-234	1800 ± 100
Pb-210	270 ± 70
Po-210	34 ± 22
Th-232	0.0 ± 0.5
Th-230	10 ± 8
Th-228	4 ± 10
Th-227	-5.4 ± 7.0
Ra-228	33 ± 80
Gamma Spectrometry	
K-40	5300 ± 1800
Unit of analysis pCi/l	
	French Drain High Hazard
	STA. 21

RADIATION SAMPLES (± counting error)

SOIL SAMPLES

	MFD 129	MFD 132	MFD 135	MFD 146	MFD 152
Gross Alpha	-11 ± 26	6 ± 10	-40 ± 54	2 ± 4	-5 ± 28
Gross Beta	670 ± 40	8 ± 8	870 ± 90	1 ± 3	600 ± 50
Ra-226	0.4 ± 0.2	0.5 ± 0.2	0.1 ± 0.2	0.0 ± 0.2	0.1 ± 0.2
U-238	0.83 ± 0.32	0.61 ± 0.30	0.24 ± 0.26	-0.07 ± 0.21	2.2 ± 0.4
U-235	-0.02 ± 0.08	0.03 ± 0.10	0.01 ± 0.10	-0.02 ± 0.08	0.13 ± 0.13
U-234	0.98 ± 0.34	1.1 ± 0.4	0.24 ± 0.26	-0.09 ± 0.20	2.5 ± 04
Pb-210	0.2 ± 0.6	0.1 ± 0.6	-0.1 ± 0.6	0.3 ± 0.6	0.4 ± 0.6
Po-210	0.9 ± 0.6	-0.2 ± 0.5	0.5 ± 0.6	0.1 ± 0.5	0.8 ± 0.8
Th-232	0.02 ± 0.04	0.02 ± 0.03	0.00 ± 0.01	0.02 ± 0.03	0.06 ± 0.06
Th-230	0.29 ± 0.17	0.07 ± 0.12	0.19 ± 0.30	0.02 ± 0.11	0.25 ± 0.16
Th-228	-0.04 ± 0.17	0.16 ± 0.20	-0.09 ± 0.19	0.02 ± 0.18	-0.06 ± 0.16
Th-227	-0.09 ± 0.12	-0.09 ± 0.12	-0.09 ± 0.12	-0.11 ± 0.14	-0.11 ± 0.14
Ra-228	-0.02 ± 0.08	0.07 ± 1.0	-0.03 ± 0.07	-0.04 ± 1.0	0.02 ± 0.08
Gamma Spectrometry					
K-40	1500 ± 400	ND	790 ± 350	ND	180 ± 340
	MW 18 QA/QC	Upstream Weber Falls	Outfall #1	MW 07	MW 18
	Unit of analysis pCi/L				
	Station 07	Station 10	Station 13	Station 02	Station 07

INORGANIC SOIL ANALYSIS SUMMARY

CASE NUMBER: 5720
SITE NAME/CODE: Fansteel Metals OK 3549

CONCENTRATIONS (ppm)

PARAMETER	EPA Sample Numbers											AMBIENT BACKGROUND 1.	
	MFD125	MFD133	MFD134	MFD137	MFD138	MFD139	MFD140	MFD141	MFD143	MFD147		Western U.S. 2.	Eastern U.S. 2.
Matrix type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		Soil	Soil
Aluminum	1190*	4010*	3350*	35,200*	7550*	6990*	36,000*	21,300*	11,400*	3880*		58,000	33,000
Antimony	R	R	R	R	R	R	R	R	R	R		.47	.52
Arsenic							14	13				5.5	4.8
Barium				6900		138	753	133	154	147		580	290
Beryllium							21					0.68	0.55
Cadmium						5	6.8					1	1
C[illegible]ium	2110	1160	1120	45,100	1630	55,300	117,000	10,700	3020	4210		18,000	3,200
[illegible]omium		9.4	5.6	147	17	51	1540	60	30	8.8		41	33
Cobalt												7.1	5.9
Copper	3	4.1	5.6	15	11	18	24	32	13	6.6		21	13
Iron	2980*	5940	4960	15,900	8490	15,000	12,200	17,200	20,400	7650		21,000	14,000
Lead		9	8.7	75	5.5	9.2	73	69	14	5.1		17	14
Magnesium	812	576	503	1920	972	1600	9210	2410	2850	1640		7,800	2,300
Manganese	94	325	300	926	211	606	2160	126	1000	238		380	260
Mercury				0.4		0.2	0.4	1.6				0.046	0.081
Nickel						19						15	11
Potassium	330	518	435	38,000	1010	7610	3180	5330	1590	647			
Selenium												.23	.30
Silver							6.1	6.7				-	-
Sodium	66	65	62	11,300	78	51,200	9210	600	76	162		10,000	2,600
Thallium												9.1	7.7
Tin		R	R	413R	36R	131R	1410R	109R	31R			.90	.96
V[illegible]dium				51			282	59				70	43
[illegible]	10	14	12	74	33	52	57	62	32	21		55	40
Cyanide													
Station No.	09A	11	12	14	15	16	17	18	20	10A			
Sample Station Location	DOWN-STREAM	BACK-GROUND SOIL 0-3"	BACK-GROUND SOIL 3-6"	OUTFALL #2	OUTFALL #3	POND #10	BETWEEN L3 & ACID RESIDUE STORAGE	TANK FARM	DRAINAGE PATH BASE	UPSTREAM BACK-GROUND			

1. Values obtained from "Element Concentrations Soils and Other Surface Materials of the Conterminous United States", dated 1984. U.S.G.S. Professional Paper 1270.
2. Reference for East/West Division is the 96W longitudinal line

E-indicates a value estimated or not reported due to the presence of interference.
R-spike sample recovery is not within control limits.
*-duplicate analysis is not within control limits.
J-Value or detection limit is an estimate.
X-Data is invalid.
B-Blank Contaminant

ORGANIC ANALYSIS SUMMARY

SITE NAME: FANSTEEL METALS
CASE NUMBER 5720 PAGE 1 OF 4
CONCENTRATIONS IN PARTS PER BILLION

ORGANIC TRAFFIC NUMBERS
AND SAMPLE STATION LOCATION DESCRIPTIONS

		FC136	FC147	FC148	FC150	FC151	FC152	FC153	FC154	FC156	FC157		
		STA09A DOWNSTREAM	STA11 BACKGROUND SOIL 0-3"	STA12 BACKGROUND SOIL 3-6"	STA14 OUTFALL#2	STA15 OUTFALL#3	STA16 POND #10	STA17 BETWEEN L3 & ACID RESI DUE STORAGE	STA18 TANK FARM	STA20 DRAINAGE PATH-BASE	STA10A UPSTREAM BACKGROUND		
	MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
COMPOUND	CAS#/SCAN CLASS												
1,1,1-TRICHLOROETHANE	71-55-6 VOA/1												
METHYLENE CHLORIDE	75-09-2 VOA/1	14B	6B	9B	14B	17B	7B	25B	16B	15B	15B		
TOLUENE	108-88-3 VOA/1							3J		1J			
ACETONE	67-64-1 VOA/2	25B		1JB	26B	16B	8JB	37B	10B	11JB	19B		
2-BUTANONE	78-93-3 VOA/2	6JB											
4-METHYL-2-PENTANONE	108-10-1 VOA/2							25			3J		
FLUORANTHENE	206-44-0 ABN/1		24J		400J		230J			88J			
ISOPHORONE	78-59-1 ABN/1												
BIS(2-ETHYLHEXYL)PHTHALAT	117-81-7 ABN/1						14000	6600	1300J				
DI-N-BUTYL PHTHALATE	84-74-2 ABN/1	99JB		74JB			450JB			83JB	70JB		
DIETHYL PHTHALATE	84-66-2 ABN/1												
PHENANTHRENE	85-01-8 ABN/1						190J						
PYRENE	129-00-0 ABN/1						180J			71J			
PCB-1242 (AROCHLOR)	53469-21-9 PES/1						160						
PCB-1254 (AROCHLOR)	11097-69-1 PES/1				4100	410		800	1700				
ALKANE	253 VOA/3						40J						
UNKNOWN KETONE	218 ABN/3						400J						
UNKNOWN	219 ABN/3		200J								200J		
UNKNOWN	227 ABN/3	400J		200J						300J			
UNKNOWN	245 ABN/3				20000J			20000J	9000J				
UNKNOWN	255 ABN/3												
UNKNOWN	257 ABN/3						10000J						
ALKANE	266 ABN/3												
UNKNOWN	266 ABN/3					10000J							
UNKNOWN	268 ABN/3												
UNKNOWN	269 ABN/3												
ALDOL CONDENSATION PRODUC	274 ABN/3	90000JB	50000JB	50000JB	300000JB	200000JB	200000JB	400000JB	200000JB	70000JB	60000JB		
UNKNOWN	286 ABN/3												
UNKNOWN	316 ABN/3												
UNKNOWN	345 ABN/3	4000JB	2000JB	2000JB	4000JB	3000JB	4000JB	4000JB	2000JB	3000JB	3000JB		
UNKNOWN	345 ABN/3												
UNKNOWN	365 ABN/3												
UNKNOWN	375 ABN/3												
UNKNOWN KETONE	676 ABN/3												
UNKNOWN	687 ABN/3							7000J					
UNKNOWN	785 ABN/3												
UNKNOWN	819 ABN/3		300J										
UNKNOWN	1122 ABN/3								1000J				
UNKNOWN	1158 ABN/3												
UNKNOWN	1200 ABN/3					400J							

1. PRIORITY POLLUTANT
2. SPECIFIED HAZARDOUS SUBSTANCE
3. TENTATIVELY IDENTIFIED

VOA - VOLATILE
ABN - ACID/BASE/NEUTRAL
PES - PESTICIDE

B - THE ANALYTE IS FOUND IN THE LAB BLANK
J - INDICATES AN ESTIMATED VALUE FOR TENTATIVELY IDENTIFIED COMPOUNDS OR COMPOUNDS FOUND BELOW CONTRACT DETECTION LIMIT
P - PRESENT IN SAMPLE, BUT NOT REPORTED BY LAB

C - CONFIRMED BY MASS SPECTRAL DATA

INORGANIC WATER ANALYSIS SUMMARY

CASE NUMBER: 5720
SITE NAME/CODE: Fansteel Metals OK3549

CONCENTRATIONS (ppb)

PARAMETER	EPA Sample Numbers											Drinking Water Criteria	
	MFD124	MFD126	MFD129	MFD131	MFD132	MFD135	MFD144	MFC145	F5243			Primary	Secondary
Matrix type	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER				
Aluminum	990R	2200R	2640	2310R	1320	2750	R		1,100,000				
Antimony									R				
Arsenic		2000	3100			3200			930			50	
Barium			R		R	R		R	1430R			1000	
Beryllium									693				
Cadmium			17		9	43			150			10	
Calcium	23,100	110,000	26,400	61,600	72,600	363,000		110	24,200R				
Chromium		60	5	8		32			39,700			50	
Cobalt		20							1110				
Copper	21	26	11	5	10	24			608				1000
Iron	23,700R	2210R	61,300R	3010R	1660R	230R	100R	130R	1,700,000				300
Lead	8	5	6R		R	6R		R	410			50	
Magnesium	18,700	7840	38,900	16,800	22,300	3710			69,100				
Manganese	427R	1360R	12,400R	102R	75R	245R	R	7R	442,000				50
Mercury					0.5							2	
Nickel						20			2500				
Potassium	880R	891,000	583,000	4840R	4510	968,000	R		121,000				
Selenium		8	R		R	R		R	R			10	
Silver		8	7		5	20			31			50	
Sodium	51,700	1,540,000	484,000	143,000	253,000	1,870,000		110	330,000				
Thallium			R		R	R		R	R				
Tin			350*		*	*		*	40,000				
Vanadium			R		R	R		R	23,000				
Zinc	86	39	37	11	10	5			6360				5000
Cyanide		19				15							
Station No.	02	28	07	09	10	13A	24	25	21				
Sample Station Location	MW-W07	S.E. CORNER OF LAND-FILL	MW-18	DOWN-STREAM WEBBER FALLS	UPSTREAM WEBBER FALL	OUTFALL #1	RINSATE	RINSATE	FRENCH DRAIN SYSTEM				

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ORGANIC ANALYSIS SUMMARY

SITE NAME: FANSTEEL METALS
CASE NUMBER 5720 PAGE 4 OF 4
CONCENTRATIONS IN PARTS PER BILLION

ORGANIC TRAFFIC NUMBERS
AND SAMPLE STATION LOCATION DESCRIPTIONS

		FC135	FC137	FC138	FC140	FC142	FC143	FC144	FC145	FC146	FC134		
		STA02 MW#W07	STA28 S.E. CORNER OF LANDFILL	STA05 MW#05	STA07 MW#18	STA09 DOWN STREAM WEBBR FALLS 100 YDS S. OF BRIDGE	STA10 UP STREAM WEBBR FALLS	STA13A OUTFALL#1	STA24 RINSATE	STA25 RINSATE	Sta 01 MW 15		
	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	Water		
COMPOUND	CAS#/SCAN CLASS												
UNKNOWN CARBOXYLIC ACID	1202 ABN/3												
UNKNOWN	1259 ABN/3		10J			20J			30J				
UNKNOWN	1274 ABN/3												
UNKNOWN	1451 ABN/3												
UNKNOWN HYDROCARBON	1542 ABN/3												
UNKNOWN	1575 ABN/3												
UNKNOWN HYDROCARBON	1590 ABN/3												
UNKNOWN	1615 ABN/3												
UNKNOWN	1629 ABN/3												
ALKANE	1636 ABN/3												
UNKNOWN HYDROCARBON	1637 ABN/3												
UNKNOWN	1646 ABN/3												
UNKNOWN	1650 ABN/3												
UNKNOWN	1663 ABN/3												
UNKNOWN	1680 ABN/3												
UNKNOWN	1695 ABN/3												
UNKNOWN	1702 ABN/3												
UNKNOWN	1713 ABN/3												
UNKNOWN	1713 ABN/3												
UNKNOWN	1725 ABN/3												
UNKNOWN HYDROCARBON	1727 ABN/3												
UNKNOWN	1738 ABN/3												
UNKNOWN	1760 ABN/3												
UNKNOWN	1762 ABN/3												
UNKNOWN HYDROCARBON	1770 ABN/3												
UNKNOWN	1777 ABN/3												
UNKNOWN HYDROCARBON	1789 ABN/3												
UNKNOWN	1808 ABN/3												
UNKNOWN	1817 ABN/3												
UNKNOWN	1819 ABN/3												
UNKNOWN	1830 ABN/3												
UNKNOWN	1852 ABN/3												
UNKNOWN HYDROCARBON	1857 ABN/3												
UNKNOWN	1873 ABN/3												
UNKNOWN HYDROCARBON	1889 ABN/3												
UNKNOWN	1898 ABN/3												
UNKNOWN	1911 ABN/3												
UNKNOWN	1947 ABN/3												

1. PRIORITY POLLUTANT
2. SPECIFIED HAZARDOUS SUBSTANCE
3. TENTATIVELY IDENTIFIED

VOA - VOLATILE
ABN - ACID/BASE/NEUTRAL
PES - PESTICIDE

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ORGANIC ANALYSIS SUMMARY

SITE NAME: FONSTEEL METALS
CASE NUMBER 5720 PAGE 2 OF 4
CONCENTRATIONS IN PARTS PER BILLION

ORGANIC TRAFFIC NUMBERS
AND SAMPLE STATION LOCATION DESCRIPTIONS

			FC136	FC147	FC148	FC150	FC151	FC152	FC153	FC154	FC156	FC157		
			STA09A DOWNSTREAM	STA11 BACKGROUND SOIL 0-3"	STA12 BACKGROUND SOIL 3-6"	STA14 OUTFALL#2	STA15 OUTFALL#3	STA16 POND #10	STA17 BETWEEN L3 & ACID RESI DUE STORAGE	STA18 TANK FARM	STA20 DRAINAGE PATH-BASE	STA10A UPSTREAM BACKGROUND		
	MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
COMPOUND	CAS#/SCAN	CLASS												
UNKNOWN CARBOXYLIC ACID	1202	ABN/3		300J	400J					2000J				
UNKNOWN	1259	ABN/3												
UNKNOWN	1274	ABN/3						1000J						
UNKNOWN	1451	ABN/3						600J						
UNKNOWN HYDROCARBON	1542	ABN/3									200J			
UNKNOWN	1575	ABN/3				10000J								
UNKNOWN HYDROCARBON	1590	ABN/3					600J				500J			
UNKNOWN	1615	ABN/3						4000J						
UNKNOWN	1629	ABN/3						2000J						
ALKANE	1636	ABN/3									400J			
UNKNOWN HYDROCARBON	1637	ABN/3					400J							
UNKNOWN	1646	ABN/3						4000J						
UNKNOWN	1650	ABN/3				5000J								
UNKNOWN	1663	ABN/3						8000J						
UNKNOWN	1680	ABN/3						6000J						
UNKNOWN	1695	ABN/3						5000J						
UNKNOWN	1702	ABN/3						2000J						
UNKNOWN	1713	ABN/3						4000J						
UNKNOWN	1713	ABN/3				5000J								
UNKNOWN	1725	ABN/3						2000J						
UNKNOWN HYDROCARBON	1727	ABN/3					400J				200J			
UNKNOWN	1738	ABN/3				5000J		1000J						
UNKNOWN	1760	ABN/3				20000J								
UNKNOWN	1762	ABN/3						2000J						
UNKNOWN HYDROCARBON	1770	ABN/3	200J	600J	300J		900J		4000J	2000J	700J	200J		
UNKNOWN	1777	ABN/3						900J						
UNKNOWN HYDROCARBON	1789	ABN/3				2000J								
UNKNOWN	1808	ABN/3				4000J								
UNKNOWN	1817	ABN/3				5000J								
UNKNOWN	1819	ABN/3							10000J					
UNKNOWN	1830	ABN/3				3000J								
UNKNOWN	1852	ABN/3									300J			
UNKNOWN HYDROCARBON	1857	ABN/3				3000J								
UNKNOWN	1873	ABN/3					500J				300J			
UNKNOWN HYDROCARBON	1889	ABN/3									200J			
UNKNOWN	1898	ABN/3						700J						
UNKNOWN	1911	ABN/3	900J				900J				600J			
UNKNOWN	1947	ABN/3	600J											

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ORGANIC ANALYSIS SUMMARY

SITE NAME: FANSTEEL METALS
CASE NUMBER 5720 PAGE 3 OF 4
CONCENTRATIONS IN PARTS PER BILLION

ORGANIC TRAFFIC NUMBERS
AND SAMPLE STATION LOCATION DESCRIPTIONS

			FC135	FC137	FC138	FC140	FC142	FC143	FC144	FC145	FC146	FC 134
			STA02 MW#W07	STA28 S.E. CORNER OF LANDFILL	STA05 MW#05	STA07 MW#18	STA09 DOWN STREAM WEBBR FALLS 100 YDS S. OF BRIDGE	STA10 UP STREAM WEBBR FALLS	STA13A OUTFALL#1	STA24 RINSATE	STA25 RINSATE	sta 01 MW 15
		MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	water
COMPOUND	CAS#/SCAN	CLASS										
1,1,1-TRICHLOROETHANE	71-55-6	VOA/1								3J	7	
METHYLENE CHLORIDE	75-09-2	VOA/1	9B	9B	5300B	11B	9B	9B	850B	9B	9B	9B
TOLUENE	108-88-3	VOA/1								2J	1J	
ACETONE	67-64-1	VOA/2		11B	7700B	28B		17B	1000B	5JB		14B
2-BUTANONE	78-93-3	VOA/2										
4-METHYL-2-PENTANONE	108-10-1	VOA/2			51000	9J			6200			
FLUORANTHENE	206-44-0	ABN/1										
ISOPHORONE	78-59-1	ABN/1							2J			
BIS(2-ETHYLHEXYL)PHTHALAT	117-81-7	ABN/1										
DI-N-BUTYL PHTHALATE	84-74-2	ABN/1										
DIETHYL PHTHALATE	84-66-2	ABN/1				1J						
PHENANTHRENE	85-01-8	ABN/1										
PYRENE	129-00-0	ABN/1										
PCB-1242 (AROCHLOR)	53469-21-9	PES/1										
PCB-1254 (AROCHLOR)	11097-69-1	PES/1										
ALKANE	253	VOA/3										
UNKNOWN KETONE	218	ABN/3										
UNKNOWN	219	ABN/3										
UNKNOWN	227	ABN/3										
UNKNOWN	245	ABN/3										
UNKNOWN	255	ABN/3							400J			
UNKNOWN	257	ABN/3										
ALKANE	266	ABN/3						8J				
UNKNOWN	266	ABN/3	10J									
UNKNOWN	268	ABN/3								10J		
UNKNOWN	269	ABN/3							30J			
ALDOL CONDENSATION PRODUC	274	ABN/3										
UNKNOWN	286	ABN/3									10J	
UNKNOWN	316	ABN/3							10J			
UNKNOWN	345	ABN/3										
UNKNOWN	345	ABN/3							4J			
UNKNOWN	365	ABN/3							80J			
UNKNOWN	375	ABN/3		10J								
UNKNOWN KETONE	676	ABN/3				10J						
UNKNOWN	687	ABN/3										
UNKNOWN	785	ABN/3							10J			
UNKNOWN	819	ABN/3										
UNKNOWN	1122	ABN/3										
UNKNOWN	1198	ABN/3	10J									
UNKNOWN	1200	ABN/3										

CARBON DISULFIDE 5

1. PRIORITY POLLUTANT
2. SPECIFIED HAZARDOUS SUBSTANCE
3. TENTATIVELY IDENTIFIED

VOA - VOLATILE
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C - CONFIRMED BY MASS SPECTRAL DATA

SYNS:
1-DODECANETHIOL
M-DODECYL MERCAPTAN
1-DODECYL MERCAPTAN
M-LAURYL MERCAPTAN
1-MERCAPTODODECANE
NCI-C60935

TOXICITY DATA: CODEN:
cyt-rat-ihl 5020 ug/m3/16W BZARAZ 27,102,74

Reported in EPA TSCA Inventory, 1980.
THR: See mercaptans. MUT data.
Fire Hazard: Low.
To Fight Fire: Alcohol foam.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAURYLPYRIDINIUM LAURYLXANTHATE

CAS RN: 14917965 NIOSH #: UU 5775000
mf: $C_{17}H_{30}N \cdot C_{13}H_{25}OS_2$; mw: 509.98

TOXICITY DATA: 2 CODEN:
skn-rbt 500 mg/24H MOD 28ZPAK -,174,72
eye-rbt 20 mg/24H SEV 28ZPAK -,174,72
orl-rat LD50:802 mg/kg 28ZPAK -,174,72

THR: MOD orl. A skn, eye irr.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and SO_x.

LAURYL SULFATE, SODIUM SALT, CONDENSED WITH 3 MOLES OF ETHYLENE OXIDE

NIOSH #: OF 5725000

SYNS:
SODIUM SALT OF SULFATED BROAD-CUT COCONUT ETHOXY(3EO) ALCOHOL
SODIUM SALT OF SULFATED ETHOXYLATE OF BROAD-CUT LAURYL ALCOHOL

TOXICITY DATA: 2 CODEN:
skn-rbt 10 mg MLD JSCCA5 22,411,71
skn-rbt 230 mg/5W open MLD JSCCA5 22,411,71
skn-gpg 115 mg/5W open MLD JSCCA5 22,411,71

THR: A skn irr.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAVANDIN OIL

CAS RN: 8022159 NIOSH #: OF 6097500

Main constituent is Linalool; found in plant Lavanoula Hybrida Reverchon; prepared by steam distillation of the flowering stalks of the plant.

SYN: OIL OF LAVANDIN

TOXICITY DATA: 2 CODEN:
skn-rbt 500 mg/24H MLD FCTXAV 14,443,76

Reported in EPA TSCA Inventory, 1980.
THR: A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVATAR

NIOSH #: OF 6097840

Coal tar distillates in a shampoo base.

TOXICITY DATA: CODEN:
mma-sat 25 ug/plate TOLED5 3,325,79

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVENDER ABSOLUTE

NIOSH #: OF 6100000

Found in the flowers of Lavandula Officinalis chaix. The main constituent is Linalyl Acetate; prepared from alcoholic extract of a residue, which is extracted from plant material using an organic solvent; a dark green liquid.

TOXICITY DATA: 1 CODEN:
skn-rbt 500 mg/24H MLD FCTXAV 14,443,76
orl-rat LD50:4250 mg/kg FCTXAV 14(5),443,76

THR: LOW orl; A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVENDER OIL

CAS RN: 8000280 NIOSH #: OF 6110000

Main constituent is linalyl acetate. Found in the plant Lavandulaofficinalif choix (Fam. Labiate). Prepared by steam distillation of the flowering stalks of the plant.

SYNS:
LAVENDEL OEL (GERMAN)
OIL OF LAVENDER

TOXICITY DATA: 1 CODEN:
skn-rbt 500 mg/24H MLD FCTXAV 14,443,76
orl-rat LD50:9040 mg/kg PHARAT 14,435,59

Reported in EPA TSCA Inventory, 1980.
THR: LOW orl. A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LD-813

CAS RN: 64083052 NIOSH #: OF 6730000

Commercial mixture of aromatic amines containing approx. 40% MOCA

TOXICITY DATA: 3 CODEN:
orl-rat TDLo:37 gm/kg/2Y-C:CARC TXAPA9 31,159,75

THR: An exper CARC. See also aromatic amines.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

LEAD

CAS RN: 7439921 NIOSH #: OF 7525000
mf: Pb; mw: 207.19

Bluish-gray, soft metal. mp: 327.43°, bp: 1740°, d: 11.34 @ 20°/4°. vap. press: 1 mm @ 973°.

SYNS:
C.I. 77575
LEAD FLAKE
LEAD S2
OLOW (POLISH)

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:790 mg/kg (MGN)	AEHLAU 23,102,71
orl-rat TDLo:1140 mg/kg (14D pre-21D post)	PHMCAA 20,201,78
orl-mus TDLo:1120 mg/kg (MGN)	AEHLAU 23,102,71
orl-mus TDLo:6300 mg/kg (1-21D preg)	EXPEAM 31,1312,75
orl-mus TDLo:12600 mg/kg (1-21D preg)	EXPEAM 31,1312,75
orl-mus TDLo:4800 mg/kg (1-16D preg)	BECTA6 18,271,77
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
orl-dom TDLo:662 mg/kg (1-21W preg)	TXAPA9 25,466,73
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
orl-wmn TDLo:450 mg/kg/6Y:CNS	JAMAAP 237,2627,77
ipr-rat LDLo:1000 mg/kg	EQSSDX 1,1,75
orl-pgn LDLo:160 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Indefinite IARC** 23, 325,80.

TLV: AIR: 0.15 mg/m3 DTLVS* 4,243,80; *Toxicology Review:* TRBMAV 33(1),85,75; PGMJAO 51(601),783,75; JDSCAE 58(12),1767,75; IRXPAT 12,1,73; CTPHBG 55,147,71; CTOXAO 6(3),377,73; QURBAW 7(1),75,74; RREVAH 54,55,75; JAVMA4 164(3),277,74; AEMBAP 40,239,73; CTOXAO 5(2),151,72; FOREAE 7,313,42; KOTTAM 11(11),1300,75; GEIGAI 20(3),291,73; STEVA8 2(4),341,74; CLCHAU 19,361,73; AJMEAZ 38,409,65; 85DHAX PB,254,72; PDTNBH 6,204,77; AMTODM 3,209,77. OSHA Standard: Air: TWA 200 ug/m3 (SCP-O) FEREAC 39,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 1 102,191,195,200,208,214,262, VOL 3 S341. Reported in EPA TSCA Inventory, 1980.

THR: See lead compounds. A hmn CNS. HIGH orl; MOD irr. A common air contaminant. It is a ± CAR of the lungs and kidney and an exper TER.

Fire Hazard: Mod, in the form of dust when exposed to heat or flame. See also powdered metals.

Explosion Hazard: Mod, in the form of dust when exposed to heat or flame.

Incomp: NH_4NO_3, ClF_3, H_2O_2, NaN_3, Na_2C_2, Zr. disodium acetylide; oxidants.

Disaster Hazard: Dangerous; when heated, emits highly tox fumes; can react vigorously with oxidizing materials.

For further information see Vol. 1, No. 1 of *DPIM Report.*

LEAD ACETATE

CAS RN: 301042 NIOSH #: AI 5250000
mf: $C_4H_6O_4 \cdot Pb$; mw: 325.29

Trihydrate, colorless crystals or white granules or powder. Slightly acetic odor; slowly effloresces; d: 2.55; mp: 75° when rapidly heated. Decomp above 200°; very sol in glycerol. Keep well closed.

SYNS:

ACETIC ACID LEAD (2+) SALT	LEAD DIBASIC ACETATE
ACETATE DE PLOMB (FRENCH)	NORMAL LEAD ACETATE
BLEIACETAT (GERMAN)	PLUMBOUS ACETATE
LEAD (2+) ACETATE	SALT OF SATURN
LEAD(II) ACETATE	SUGAR OF LEAD
LEAD DIACETATE	

TOXICITY DATA: 3	CODEN:
dns-rat-ipr 50 ug/kg	PSEBAA 143,446,73
spm-mus-par 1 gm/kg	ARTODN 46,159,80
orl-rat TDLo:7854 mg/kg (6-16D preg)	FCTXAV 13,629,75
orl-rat TDLo:1800 mg/kg (1-22D preg/14D post)	TOLED5 7,373,80
orl-rat TDLo:113 gm/kg (70D pre-21D post)	PBBHAU 8,347,78
orl-mus TDLo:3150 mg/kg (1-21D preg)	CRSBAW 170,1319,76
orl-mus TDLo:4800 mg/kg (1-8D preg)	CRSBAW 172,1037,78
orl-mus TDLo:9 gm/kg (7-21D preg)	CRSBAW 170,1319,76
ipr-mus TDLo:35 mg/kg (8D preg)	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
ivn-ham TDLo:50 mg/kg (8D preg)	EXPEAM 25,56,69
ipr-pgn LDLo:150 mg/kg	ARTODN 46,265,80
cyt-hmn:lym 1 mmol/L/24H	TXCYAC 10,67,78
cyt-mus-orl 16800 mg/kg/4W	JTEHD6 2,619,77
cyt-mky-orl 5760 mg/kg/64W	MUREAV 45,77,77
ipr-mus TDLo:15 mg/kg/(8D preg):TER	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
orl-rat TDLo:250 gm/kg/47W-C:ETA	BJCAAI 16,283,62
ipr-rat LDLo:204 mg/kg	JPETAB 38,161,30
ipr-mus LD50:120 mg/kg	COREAF 256,1043,63
orl-dog LDLo:300 mg/kg	HBAMAK 4,1289,35
scu-dog LDLo:80 mg/kg	HBAMAK 4,1289,35
ivn-dog LDLo:300 mg/kg	EQSSDX 1,1,75
scu-cat LDLo:100 mg/kg	HBAMAK 4,1289,35
scu-rbt LDLo:300 mg/kg	HBAMAK 4,1289,35
ivn-rbt LDLo:50 mg/kg	EQSSDX 1,1,75
scu-frg LDLo:1600 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Animal Positive IARC** 23,325,80; Human Suspected IARC** 23,325,80. *Toxicology Review:* ADTEAS 5,51,72; ENVRAL 13,36,77; 85DHAX Pb,256,72. OSHA Standard: Air: TWA 200 ug(Pb)/m3 (SCP-O) FEREAC 29,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: MUT data. An exper + CARC, TER, ETA. A susp hmn CARC; HIGH ipr, orl, scu, ivn. See also lead compounds. A poison. An insecticide.

Disaster Hazard: When heated to decomp it emits tox fumes of Pb.

Incomp: $KBrO_3$; acids, sol sulfates, citrates, tartrates, chlorides, carbonates, alkalies, tannin phosphates, resorcinol, salicylic acid, phenol, chloral hydrate, sulfites, vegetable infusions, tinctures.

For further information see Vol. 1, No. 4 of *DPIM Report.*

LEAD ACETATE, BASIC

CAS RN: 1335326 NIOSH #: OF 8750000
mf: $C_4H_{10}O_8Pb_3$; mw: 807.71

SYNS:
COLLOIDAL MANGANESE
MANGAN (POLISH)

TOXICITY DATA: 3
ihl-man TCLo:2300 ug/m3
mrc-smc 8 mmol/L/18H
ims-rat TDLo:400 mg/kg/1Y-I:ETA

CODEN:
AIHAAP 27,454,66
MUREAV 42,343,77
NCIUS* PH 43-64-886,SEPT,71

TLV: Air: 5 mg(Mn)/m3 (dust) DTLVS* 4,250,80. *Toxicology Review:* TRBMAV 33(1),85,75; ACLSCP 4, 487,74; ADTEAS 5,51,72; FOREAE 7,313,42; KOTTAM 11(11),1300,75; 85DHAX Mn,1,73; PEXTAR 12,102,69. OSHA Standard: Air: CL 5 mg/m3 (SCP-A) FEREAC 39,23540,74. "NIOSH Manual of Analytical Methods" VOL 2 S5, VOL 5 173#. Reported in EPA TSCA Inventory, 1980.
Human Tox: Occurs by inhal of the dust or fumes. Symptoms: languor, sleepiness, weakness, emotional disturbances, spastic gait, paralysis.
THR: MUT data. An exper ETA. See also manganese compounds.
Fire Hazard: Mod, in the form of dust or powder, when exposed to flame.
Spontaneous Heating: No.
Explosion Hazard: Mod, in the form of dust, when exposed to flame. See also powdered metals. Violent reaction with (Al + air), Cl_2, F_2, H_2O_2, HNO_3, NO_2, P, SO_2.
Disaster Hazard: Mod dangerous; will react with water or steam to produce hydrogen; can react with oxidizing materials.
To Fight Fire: Special dry chemical.
For further information see Vol. 1, No. 2 of *DPIM Report.*

MANGANESE ACETATE

CAS RN: 638380 NIOSH #: AI 5770000
mf: $C_4H_6O_4 \cdot Mn$; mw: 173.04

Pale red crystals, very sol in water and alc.

SYNS:
ACETIC ACID MANGANESE(II) SALT (2:1)
DIACETYLMANGANESE
MANGANESE(2+) ACETATE
MANGANESE(II) ACETATE
MANGANESE DIACETATE
MANGANOUS ACETATE
OCTAN MANGANATY (CZECH)

TOXICITY DATA: 2
orl-rat LD50:2940 mg/kg

CODEN:
MarJV# 29MAR77

Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: MOD orl. See also manganese.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

MANGANESE ACETATE TETRAHYDRATE

CAS RN: 6156-78-1 NIOSH #: AI 5775000
mf: $C_4H_6O_4 \cdot Mn \cdot 4H_2O$; mw: 245.12

Pale red, transparent monoclinic crystals. d: 1.59. Sol in water.

SYNS:
MANGANESE DIACETATE TETRAHYDRATE
MANGANOUS ACETATE TETRAHYDRATE

TOXICITY DATA: 2
orl-rat LD50:3730 mg/kg

CODEN:
AIHAAP 30,470,69

THR: MOD orl. See also manganese compounds.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

MANGANESE ACETYLACETONATE

CAS RN: 14024589 NIOSH #: OO 9350000
mf: $C_{10}H_{14}O_4Mn$; mw: 253.18

SYN: MANGANOUS ACETYLACETONATE

TOXICITY DATA: 3
ims-rat TDLo:1200 mg/kg/26W-I:NEO
ims-rat TD:1350 mg/kg/21W-I:ETA

CODEN:
JNCIAM 60,1171,78
NCIUS* PH 43-64-886,SEPT,71

Reported in EPA TSCA Inventory, 1980.
THR: An exper NEO, ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

MANGANESE (II)-o-BENZYL BENZOATE COMPOUND WITH NICOTINE TRIHYDRATE

CAS RN: 64092-22-4 NIOSH #: OO 9288500
mf: $C_{48}H_{46}MnN_4O_6 \cdot 3H_2O$; mw: 883.98

TOXICITY DATA: 3
orl-rat LDLo:300 mg/kg
ipr-rat LDLo:300 mg/kg

CODEN:
NCNSA6 5,22,53
NCNSA6 5,22,53

THR: HIGH orl, ipr. See also nicotine, manganese compounds.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

MANGANESE(II) CHLORIDE (1:2)

CAS RN: 7773015 NIOSH #: OO 9625000
mf: Cl_2Mn; mw: 125.84

Cubic, deliquesc, pink crystals. mp: 650°, bp: 1190°, d: 2.977 @ 25°.

SYNS:
MANGANESE DICHLORIDE
MANGANOUS CHLORIDE

TOXICITY DATA: 3
mmo-esc 400 mg/L
cyt-mus:mmr 1 mmol/L/48H
otr-ham:emb 130 umol/L
dnd-ham:emb 130 umol/L
msc-ham:lng 1 mmol/L
mmo-omi 24000 ppm
dnd-omi 4 mmol/L
dnd-mam:lym 5 mmol/L
orl-mus LD50:1715 mg/kg
ipr-mus TDLo:2080 mg/kg/26W-I:CARC
scu-mus TDLo:2080 mg/kg/26W-I:CARC
ims-rat LD50:700 mg/kg
ipr-mus LD50:121 mg/kg

CODEN:
ABBIA4 76,78,58
MUREAV 67,221,79
CNREA8 39,193,79
CNREA8 39,193,79
MUREAV 68,259,79
APMBAY 6,45,58
SCIEAS 198,513,77
SCIEAS 198,513,77
TOLED5 7,221,81
FEPRA7 23,393,64
FEPRA7 23,393,64
RPTOAN 38,221,75
AEPPAE 244,17,62

ivn-mus LD50:32 mg/kg	CSLNX* NX#07576
unk-mus LDLo:8 mg/kg	AIPTAK 3,77,1897
unk-dog LDLo:6500 ug/kg	AIPTAK 3,77,1897
scu-rbt LDLo:6 mg/kg	CRSBAW 96,202,27
unk-rbt LDLo:6500 ug/kg	AIPTAK 3,77,1897
unk-pgn LDLo:80 mg/kg	AIPTAK 3,77,1897
scu-frg LDLo:95 mg/kg	AIPTAK 3,77,1897

Occupational Exposure to Nitriles recm std: Air: TWA 8 mg/m3 NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: HIGH orl, ipr, ivn. See also nitriles. An eye irr. A combustible material.

To Fight Fire: Water, fog, spray, foam.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x and CN^-.

Incomp: Self-explodes; bases.

MALTOSE

CAS RN: 69794 NIOSH #: OO 5250000
mf: $C_{12}H_{22}O_{11}$; mw: 342.31

Colorless needles; d: 1.540 @ 17°; mp: decomp; very sol in water; very slightly sol in cold alc; insol in ether.

SYNS:

4-(ALPHA-D-GLUCOPYRANOSIDO)-ALPHA-GLUCOPYRANOSE	MALTOBIOSE
4-(ALPHA-D-GLUCOSIDO)-D-GLUCOSE	D-MALTOSE
	MALT SUGAR
	ALPHA-MALT SUGAR

TOXICITY DATA: 3	CODEN:
scu-mus TDLo:1750 mg/kg/50W-C:ETA	GANNA2 48,556,57

Reported in EPA TSCA Inventory, 1980.

THR: An exper ETA.

Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

MALVIDOL

NIOSH #: LK 9840000
mf: $C_{17}H_{15}O_7$; mw: 331.32

SYN: 3',5'-DIMETHOXY-3,4',5,7-TETRAHYDROXYFLAVYLIUM ACID ANION

TOXICITY DATA: 3-2	CODEN:
ipr-rat LD50:2350 mg/kg	CHTPBA 2,33,67
ivn-rat LD50:240 mg/kg	CHTPBA 2,33,67
ipr-mus LD50:4110 mg/kg	CHTPBA 2,33,67
ivn-mus LD50:840 mg/kg	CHTPBA 2,33,67

THR: HIGH ivn. MOD ipr, ivn.

Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

MANDELIC ACID

CAS RN: 90642 NIOSH #: OO 6300000
mf: $C_8H_8O_3$; mw: 152.16

Large white crystals or powder, faint odor. bp: decomp. d: 1.30, mp: 117°-119°. Sol in water, alc and ether. Darkens and decomp on prolonged exposure to light.

SYNS:

AMYGDALIC ACID	PARAMANDELIC ACID
AMYGDALINIC ACID	PHENYLGLYCOLIC ACID
ALPHA-HYDROXY-ALPHA-TOLUIC ACID	PHENYLHYDROXYACETIC ACID
ALPHA-HYDROXYPHENYLACETIC ACID	RACEMIC MANDELIC ACID

TOXICITY DATA: 3-2	CODEN:
orl-rat LDLo:3000 mg/kg	AIPTAK 64,79,40
ims-rat LD50:300 mg/kg	EMSUA8 4,223,46
orl-rbt LDLo:2000 mg/kg	AIPTAK 64,79,40

Reported in EPA TSCA Inventory, 1980.

THR: HIGH ims and MOD oral. Continued absorption can cause kidney irr. Used medicinally. Ingestion of large doses causes nausea, diarrhea and possibly kidney damage.

MANDELIC ACID NITRILE

CAS RN: 532285 NIOSH #: OO 8400000
mf: C_8H_7NO; mw: 133.16

Yellow viscous liquid. mp: −10°; bp: 170° decomp; d: 1.124.

SYNS:

AMYGDALONITRILE	NITRIL KYSELINY MANDLOVE (CZECH)
BENZALDEHYDE CYANOHYDRIN	
BENZALDEHYDKYANHYDRIN (CZECH)	

TOXICITY DATA: 3	CODEN:
eye-rbt 250 ug/24H SEV	28ZPAK -,161,72
mmo-sat 225 nmol/plate	SCIEAS 198,625,77
mma-sat 225 nmol/plate	SCIEAS 198,625,77
scu-mus LDLo:23 mg/kg	AIPTAK 12,447,04
orl-rat LD50:116 mg/kg	28ZPAK -,161,72
ivn-mus LD50:5600 ug/kg	CSLNX* NX#07767
scu-rbt LDLo:6 mg/kg	AIPTAK 5,161,1899
scu-frg LDLo:600 ug/kg	AIPTAK 5,161,1899

Reported in EPA TSCA Inventory, 1980.

THR: MUT data. An eye irr. HIGH scu, orl, ivn. See also nitriles.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x and CN^-.

beta-MANDELOYLOXY-beta-PHENYLETHYL DIMETHYLAMINE

CAS RN: 67465387 NIOSH #: OO 7395000
mf: $C_{18}H_{21}NO_3$; mw: 299.40

TOXICITY DATA: 3-2	CODEN:
scu-mus LDLo:808 mg/kg	AIPTAK 47,96,34
ivn-rbt LDLo:30 mg/kg	AIPTAK 47,96,34

THR: HIGH ivn; MOD scu.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

MANGANESE

CAS RN: 7439965 NIOSH #: OO 9275000
af: Mn; aw: 54.94

Reddish-grey or silvery, brittle, metallic element. mp: 1260°, bp: 1900°, d: 7.20, vap. press: 1 mm @ 1292°.

POLYCHLORINATED BIPHENYL (AROCLOR 1232)

CAS RN: 11141165 NIOSH #: TQ 1354000

SYNS:
AROCLOR 1232
CHLORODIPHENYL (32% Cl)

TOXICITY DATA: 2-1 CODEN:
orl-rat LD50:4470 mg/kg ARVPAX 14,139,74
skn-rbt LDLo:2000 mg/kg ARVPAX 14,139,74

Carcinogenic Determination: Human Suspected IARC** 18,43,78. *Toxicology Review:* ARVPAX 14,139,74; STEVA8 2(4),305,74. Occupational Exposure to Polychlorinated Biphenyls recm Std: Air: TWA 1.0 ug/m3 NTIS**.

THR: Susp hmn CARC. MOD skn; LOW orl. See also PCB's.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

POLYCHLORINATED BIPHENYL (AROCLOR 1242)

CAS RN: 53469219 NIOSH #: TQ 1356000

SYNS:
AROCHLOR 1242
AROCLOR 1242
CHLORIERTE BIPHENYLE, CHLORGEHALT 42% (GERMAN)
CHLORODIPHENYL (42% Cl)
CLORODIFENILI, CLORO 42% (ITALIAN)
DIPHENYLE CHLORE, 42% DE CHLORE (FRENCH)
GECHLOREERDEDIFENYL (DUTCH)

TOXICITY DATA: 3-2 CODEN:
ihl-hmn TCLo:10 mg/m3:IRR 85CYAB 2,153,59
orl-rat LD50:4250 mg/kg TXAPA9 24,434,73
scu-gpg LDLo:345 mg/kg PHRPA6 59,1085,44

Carcinogenic Determination: Human Suspected IARC** 18,43,78. *TLV:* Air: 1 mg/m3 (skin) DTLVS* 4,88,80.

Toxicology Review: EVHPAZ 1,105,72; ARVPAX 14,139,74; RREVAH 44,1,73; STEVA8 2(4),305,74; BISNAS 20,958,70. OSHA Standard: Air: TWA 1 mg/m3 (skin) (SCP-I) FEREAC 39,23540,74. Occupational Exposure to Polychlorinated Biphenyls recm Std: Air: TWA 1.0 ug/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 4 S120*.

THR: Susp hmn CARC; A hmn ihl IRR. HIGH scu; MOD orl; see also PCB's.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

For further information see Chlorinated Diphenys, Vol. 1, No. 3 of *DPIM Report.*

POLYCHLORINATED BIPHENYL (AROCLOR 1248)

CAS RN: 12672296 NIOSH #: TQ 1358000

SYNS:
AROCLOR 1248
CHLORODIPHENYL (48% Cl)

TOXICITY DATA: 3 CODEN:
orl-mky TDLo:455 mg/kg FEPRAT 34,338,75
orl-mky TDLo:33 mg/kg/(1-166D preg):TER TXCYAC 6,331,76
orl-rat LD50:11 gm/kg ARVPAX 14,139,74
skn-rbt LDLo:1269 mg/kg ARVPAX 14,139,74

Carcinogenic Determination: Human Suspected IARC** 18,43,78. *Toxicology Review:* ARVPAX 14,139,74; STEVA8 2(4),305,74. Occupational Exposure to Polychlorinated Biphenyls recm Std: Air: TWA 1.0 ug/m3 NTIS**. =

THR: An exper TER. A susp hmn CARC. MOD skn; LOW orl. See also PCB's.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

For further information see Chlorinated Diphenyls, Vol. 1, No. 3 of *DPIM Report.*

POLYCHLORINATED BIPHENYL (AROCLOR 1254)

CAS RN: 11097691 NIOSH #: TQ 1360000

Composed of 11% tetra-, 49% penta-, 34% hexa- and 6% heptachlorobiphenyls (FCTXAV 12,63,74)

SYNS:
AROCHLOR 1254
AROCLOR 1254
CHLORIERTE BIPHENYLE, CHLORGEHALT 54% (GERMAN)
CHLORODIPHENYL (54% Cl)
CLORODIFENILI, CLORO 54% (ITALIAN)
DIPHENYLE CHLORE, 54% DE CHLORE (FRENCH)
NCI-C02664

TOXICITY DATA: 3 CODEN:
orl-rat TDLo:188 mg/kg (MGN) FCTXAV 12,63,74
orl-rat TDLo:645 mg/kg (MGN) FCTXAV 12,63,74
orl-rat TDLo:90 mg/kg (7-15D preg) FCTXAV 11,471,73
orl-rbt TDLo:350 mg/kg (1-28D preg) EVPHBI 1,67,71
orl-rat TDLo:4 gm/kg/2Y-I:ETA NCITR* NCI-CG-TR-38,78
orl-mus TDLo:17 gm/kg/48W-C:NEO JNCIAM 53,547,74
skn-mus TDLo:4 mg/kg:ETA BECTA6 18,552,77
orl-rat LD50:1295 mg/kg FCTXAV 12,63,74
ivn-rat LD50:358 mg/kg FCTXAV 12,63,74
ipr-mus LD50:2840 mg/kg BECTA6 8,245,72

Carcinogenic Determination: Human Suspected IARC** 18,43,78.

TLV: Air: 0.5 mg/m3 DTLVS* 4,89,80. *Toxicology Review:* EVHPAZ 1,105,72; ARVPAX 14,139,74; RREVAH 44,1,73; STEVA8 2(4),305,74; BISNAS 20,958,70. OSHA Standard: Air: TWA 500 ug/m3 (skin) (SCP-I) FEREAC 39,23540,74. Occupational Exposure to Polychlorinated Biphenyls recm std: Air: TWA 1.0 ug/m3 NTIS**. NCI Carcinogenesis Bioassay Completed; Results Indefinite: Rat (NCITR* NCI-CG-TR-38,78). "NIOSH Manual of Analytical Methods" Vol. 2 S121.

THR: An exper ETA, NEO. A susp hmn CARC. HIGH ivn; MOD orl, ipr. See also PCB's.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

For further information see Chlorinated Diphenyls, Vol. 1, No. 3 of *DPIM Report.*

POLYCHLORINATED BIPHENYL (AROCLOR 1260)

CAS RN: 11096825 NIOSH #: TQ 1362000

F 7033

Transmittal Letter

Case Number: 5720 SAS 2015-F

Date Received: 4-14-86

Date Reported: 7-15-86

Approval: _____
Cathy Cairns
Project Manager

55-5720-6-0024

~~55-5720-6-0002~~

F 7028 Rev.
Case No. 2015F
SAS No. 5720

DOCUMENT INVENTORY

Lab Name Accu-Labs Research, Inc.
Date 7-14-86

Document Control # (QC#-Case#-Region#-Doc.#)	Document Type	# pages
55 -5720-6-0001	Case file document inventory (F7028)	1
55 -5720-6-0002	Shipping air bill	3
55 -5720-6-0003	Sample tags	
55 -5720-6-0004	SMO forms (SAS samples)	6
55 -5720-6-0005	Chain-of-Custody Forms	6
55 -5720-6-0006	Sample traffic reports	6
55 -5720-6-0007	Sample log-in sheets (F 7005)(Rev. A)	3
55 -5720-6-0008	Weekly progress reports	0
55 -5720-6-0009	Analysis data summary (F8012D)	4
55 -5720-6-0010	Radiochemical Analysis Control Sheet (F8248)	1
55 -5720-6-0011	Analyst Notebook pages	11
55 -5720-6-0012	Instrument printout	42
55 -5720-6-0013	Computer printout	30
55 -5720-6-0014	Internal Chain-of-Custody form (F7003)	1
55 -5720-6-0015	Counting Room Log Sheet (F8181)	6
55 -5720-6-0016	Calibration Verification (F7029)	1
55 -5720-6-0017	Duplicate Sample Results (F7030)	3
55 -5720-6-0018	Reagent Blank Results (F7031)	1
55 -5720-6-0019	Sample Lower Limits of Detection (F7032)	5
55 -5720-6-0020	Correspondence	0
55 -5720-6-0021	Gamma Spectrometry Raw Data	9
55 -5720-6-0022	Gamma Spectrometry Results	7
55 -5720-6-0023	Gamma Spec. Chain of Custody	2
55 -5720-6-0024	Transmittal Letter	1
- -0025		
- -0026		
- -0027		
- -0028		
- -0029		
- -0030		

Document Control No. 55-5720-6-0001

COMPLETE PURPLE AREAS. FOR ASSISTANCE, CALL 800-238-5355 TOLL FREE.
SEE BACK OF FORM SEPARATELY FOR COMPLETE PREPARATION INSTRUCTIONS.

FEDERAL EXPRESS

SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 0752-5040-2

DATE: 7-11-86

60498

From (Your Name): [illegible]
Your Phone Number (Very Important): (310) 722-6001
Company: ECOLOGY & ENVIRONMENT INC
Department/Floor No.:
Street Address: 1509 MAIN ST STE 814
City: DALLAS
State: TX

BILL NO. 891031584

ZIP Zip Code Required For Correct Invoicing: 75201-4804

2 To (Recipient's Name): [illegible]
Recipient's Phone Number (Very Important): (303) 422-27[illegible]
Company: [illegible]
Department/Floor No.:
Exact Street Address (Use of P.O. Boxes or P.O. Zip Codes Will Delay Delivery And Result In Extra Charge.): [illegible]
City: [illegible]
State: CO

ZIP Street Address Zip Required (No P.O. Box Zip Code): [illegible]

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS STATION: Street Address (See Service Guide or Call 800-238-5355)
City: State:
ZIP Zip Code of Street Address Required:

PAYMENT: ☐ Bill Shipper ☐ Cash ☐ Bill Recipient's FedEx Acct. No. Fill in line below ☐ Bill 3rd Party FedEx Acct. No. Fill in line below ☐ Bill Credit Card Fill in line below
FedEx Acct. No. or Major Credit Card No.: 0200-1751-4

SERVICES CHECK ONLY ONE BOX	DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	PACKAGES	WEIGHT	YOUR DECLARED VALUE (See right)	OVER SIZE
☒ PRIORITY 1 Overnight Delivery 6: Using Your Packaging. ☐ OVERNIGHT LETTER (Our Packaging) 9"x12"	1 ☐ HOLD FOR PICK-UP Give the Federal Express address where you want package held in Section H at right.	2			
OVERNIGHT DELIVERY USING OUR PACKAGING: ☐ Courier-Pak Overnight Envelope 12"x 15½" ☐ Overnight Box 12½"x 17½"x 3" A ☐ ☐ Overnight Tube 38"x 6"x 6"x 6" B ☐	2 ☒ DELIVER WEEKDAY				
	3 ☐ DELIVER SATURDAY (Extra charge applies.)				
STANDARD AIR ☐ Delivery not later than second business day.	4 ☐ RESTRICTED ARTICLES SERVICE (P-1 and Standard Air Packages only. Extra charge applies.)				
	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge applies.)				
	6 ☐ DRY ICE _____ Lbs.				
	7 ☐ OTHER SPECIAL SERVICE				
	8 ☐				
	9 ☐ SATURDAY PICK-UP OR SATURDAY DROP-OFF (Extra charge applies.)				
	Total	Total	Total		

SERVICE COMMITMENT
PRIORITY 1 - Delivery is scheduled early next business morning at most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

Received At: Shipper's Door ☐ Regular Stop ☐ On-Call Stop ☐ FedEx Loc.
Federal Express Corp. Employee No.: 5105
Date/Time For Federal Express Use: 4/m 1740

YOUR DECLARED VALUE
DAMAGE OR LOSS
We are liable for no more than $100 per package in the event of physical loss or damage, unless you fill in a higher Declared Value to the left and document higher actual loss in the event of a claim. We charge 30¢ for each additional $100 of declared value up to the maximum shown in our Service Guide. Declared value restrictions are shown on the back of the Shipper's Copy of this airbill. We make no express or implied warranties.

DELAY
There is always a risk of late delivery or non-delivery. In the event of a late delivery Federal Express will, at your request, refund all transportation charges paid. See back of Shipper's Copy of this airbill for further information.

CONSEQUENTIAL DAMAGES
We will not be responsible or liable for any loss or damage resulting from delay, non-delivery or damage to a package, except as noted above. This includes loss of sales, income, interest, profits, attorneys fees and other costs, but is not limited to these items. Such damages are called "consequential damages."

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

PART #2041738901
FEC-S-751-1000
REVISION DATE 10/85
PRINTED U.S.A. SR

SHIPPER'S COPY / RETAIN FOR TRACE PURPOSES.

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
COMPLETE PURPLE AREAS. FOR ASSISTANCE, CALL 800-238-5355 TOLL FREE.
SEE BACK OF FORM SEPARATELY FOR COMPLETE PREPARATION INSTRUCTIONS.

FEDERAL EXPRESS

SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 0752-5040-2

DATE: 4/11/86

60498

From (Your Name): [illegible] Dwell
Your Phone Number (Very Important): (214) 742-6[illegible]
Company: ECOLOGY & ENVIRONMENT INC
Department/Floor No.:
Street Address: 1509 MAIN ST STE 814
City: DALLAS
State: TX

BILL NO. 891031761

ZIP Zip Code Required For Correct Invoicing: 75201-4804

2 To (Recipient's Name): Dave Dawes
Recipient's Phone Number (Very Important): (412) 7[illegible]
Company: IWS Corp. & Equipt. Division
Department/Floor No.:
Exact Street Address (Use of P.O. Boxes or P.O. Zip Codes Will Delay Delivery And Result In Extra Charge.): 5350 Campbells Run Rd.
City: Pittsburgh
State: PA

ZIP Street Address Zip Required (No P.O. Box Zip Code): 15205

YOUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS STATION: Street Address (See Service Guide or Call 800-238-5355)
City: State:
ZIP Zip Code of Street Address Required:

PAYMENT: ☐ Bill Shipper ☐ Cash ☐ Bill Recipient's FedEx Acct. No. Fill in line below ☐ Bill 3rd Party FedEx Acct. No. Fill in line below ☐ Bill Credit Card Fill in line below
FedEx Acct. No. or Major Credit Card No.: 0200-1751-4

SERVICES CHECK ONLY ONE BOX	DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	PACKAGES	WEIGHT	YOUR DECLARED VALUE (See right)	OVER SIZE
☒ PRIORITY 1 Overnight Delivery 6: Using Your Packaging. ☐ OVERNIGHT LETTER (Our Packaging) 9"x12"	1 ☐ HOLD FOR PICK-UP Give the Federal Express address where you want package held in Section H at right.				
OVERNIGHT DELIVERY USING OUR PACKAGING: ☐ Courier-Pak Overnight Envelope 12"x 15½" ☐ Overnight Box 12½"x 17½"x 3" A ☐ ☐ Overnight Tube 38"x 6"x 6"x 6" B ☐	2 ☐ DELIVER WEEKDAY				
	3 ☒ DELIVER SATURDAY (Extra charge applies.)				
STANDARD AIR ☐ Delivery not later than second business day.	4 ☐ RESTRICTED ARTICLES SERVICE (P-1 and Standard Air Packages only. Extra charge applies.)				
	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge applies.)				
	6 ☐ DRY ICE _____ Lbs.				
	7 ☐ OTHER SPECIAL SERVICE				
	8 ☐				
	9 ☐ SATURDAY PICK-UP OR SATURDAY DROP-OFF (Extra charge applies.)				
	Total	Total	Total		

SERVICE COMMITMENT
PRIORITY 1 - Delivery is scheduled early next business morning at most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

Received At: Shipper's Door ☐ Regular Stop ☐ On-Call Stop ☐ FedEx Loc.
Federal Express Corp. Employee No.: 5[illegible]
Date/Time For Federal Express Use: 4/11/86 1747

YOUR DECLARED VALUE
DAMAGE OR LOSS
We are liable for no more than $100 per package in the event of physical loss or damage, unless you fill in a higher Declared Value to the left and document higher actual loss in the event of a claim. We charge 30¢ for each additional $100 of declared value up to the maximum shown in our Service Guide. Declared value restrictions are shown on the back of the Shipper's Copy of this airbill. We make no express or implied warranties.

DELAY
There is always a risk of late delivery or non-delivery. In the event of a late delivery Federal Express will, at your request, refund all transportation charges paid. See back of Shipper's Copy of this airbill for further information.

CONSEQUENTIAL DAMAGES
We will not be responsible or liable for any loss or damage resulting from delay, non-delivery or damage to a package, except as noted above. This includes loss of sales, income, interest, profits, attorneys fees and other costs, but is not limited to these items. Such damages are called "consequential damages."

Federal Express Use: Base Charges; Declared Value Charge; Origin Agent Charge; Other; Total Charges

PART #2041738901
FEC-S-751-1000
REVISION DATE 10/85

SHIPPER'S COPY / RETAIN FOR TRACE PURPOSES.

FEDERAL EXPRESS

COMPLETE ... LE AREAS. FOR ASSISTANCE, CALL 800-238-5355 TOLL FREE.
SEE BACK ... SET FOR COMPLETE PREPARATION INSTRUCTIONS.

SENDER'S FEDERAL EXPF ... UNT NUMBER | DATE

60498 0752-5840-2

m (Your Name) | Your Phone Number (Very Important)
(21) 7 4 01

mpany: ECOLOGY & ENVIRONMENT INC
Department/Floor No.

eet Address: 1509 MAIN ST STE 814

City: DALLAS | State: TX

BILL NO. 891031573

ZIP ® Zip Code Required For Correct Invoicing: 75201480

2 To (Recipient's Name) | Recipient's Phone Number (Very Important) (412) 7 ...
Company | Department/Floor No.
Exact Street Address (Use of P.O. Boxes or P.O. ® Zip Codes Will Delay Delivery And Result In Extra Charge.)
City | State
ZIP Street Address Zip Required (No P.O. Box ® Zip Code): 15775

OUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS STATION: Street Address (See Service Guide or Call 800-238-5355)
City | State
ZIP ® Zip Code of Street Address Required

YMENT ☐ Bill Shipper ☐ Bill Recipient's FedEx Acct. No. Fill in line below ☐ Bill 3rd Party FedEx Acct. No. Fill in line below ☐ Bill Credit Card Fill in line below ☐ Cash
FedEx Acct. No. or Major Credit Card No. 0200-1751-4

SERVICES CHECK ONLY ONE BOX	DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	PACKAGES	WEIGHT	YOUR DECLARED VALUE (See right)	OVER SIZE
☒ PRIORITY 1 Overnight Delivery Using Your Packaging 6 ☐ OVERNIGHT LETTER (Our Packaging) 9" x 12"	1 ☐ HOLD FOR PICK-UP Give the Federal Express address where you want package held in Section H at right.				
OVERNIGHT DELIVERY USING OUR PACKAGING: ☐ Courier-Pak Overnight Envelope 12" x 15½" ☐ Overnight Box 12½" x 17½" x 3" A ☐ Overnight Tube 38" x 6" x 6" x 6" B ☐	2 ☐ DELIVER WEEKDAY				
	3 ☐ DELIVER SATURDAY (Extra charge applies.)				
STANDARD AIR ☐ Delivery not later than second business day	4 ☐ RESTRICTED ARTICLES SERVICE (P-1 and Standard Air Packages only. Extra charge applies)	Total	Total	Total	
	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge applies.)				
	6 ☐ DRY ICE _____ Lbs.				
	7 ☐ OTHER SPECIAL SERVICE _____				
	8 ☐				
	9 ☐ SATURDAY PICK-UP OR SATURDAY DROP-OFF (Extra charge applies.)				

Received At: Shipper's Door ☐ Regular Stop ☐ On-Call Stop ☐ FedEx Loc. _____
Federal Express Corp. Employee No.
Date/Time For Federal Express Use: 4/R 12...

YOUR DECLARED VALUE

DAMAGE OR LOSS

We are liable for no more than $100 per package in the event of physical loss or damage, unless you fill in a higher Declared Value to the left and document higher actual loss in the event of a claim. We charge 30¢ for each additional $100 of declared value up to the maximum shown in our Service Guide. Declared value restrictions are shown on the back of the Shipper's Copy of this airbill. We make no express or implied warranties.

DELAY

There is always a risk of late delivery or non-delivery. In the event of a late delivery Federal Express will, at your request, refund all transportation charges paid. See back of Shipper's Copy of this airbill for further information.

CONSEQUENTIAL DAMAGES

We will not be responsible or liable for any loss or damage resulting from delay, non-delivery or damage to a package, except as noted above. This includes loss of sales, income, interest, profits, attorneys fees and other costs, but is not limited to these items. Such damages are called "consequential damages."

Federal Express Use: Base Charges | Declared Value Charge | Origin Agent Charge | Other | Total Charges

PRIORITY 1 - Delivery is scheduled early next business morning most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

PART #2041738901 FEC-S-751-1000 REVISION DATE 10/85 PRINTED U.S.A. SR

SHIPPER'S COPY / RETAIN FOR TRACE PURPOSES.

FEDERAL EXPRESS

SEE BACK OF FORM SET FOR COMPLETE PREPARATION INSTRUCTIONS.

SENDER'S FEDERAL EXPF ... UNT NUMBER | DATE

60498 0752-5840-2

n (Your Name) | Your Phone Number (Very Important)
( )

npany: ECOLOGY & ENVIRONMENT INC
Department/Floor No.

eet Address: 1509 MAIN ST STE 814

City: DALLAS | State: TX

BILL NO. 891031772

ZIP ® Zip Code Required For Correct Invoicing: 75201480

2 To (Recipient's Name): Cathy Rollins | Recipient's Phone Number (Very Important) (...)
Company | Department/Floor No.
Exact Street Address (Use of P.O. Boxes or P.O. ® Zip Codes Will Delay Delivery And Result In Extra Charge.)
City | State
ZIP Street Address Zip Required (No P.O. Box ® Zip Code): 33

OUR BILLING REFERENCE INFORMATION (FIRST 24 CHARACTERS WILL APPEAR ON INVOICE.)
SAM R06841002

H HOLD FOR PICK-UP AT THIS FEDERAL EXPRESS STATION: Street Address (See Service Guide or Call 800-238-5355)
City | State
ZIP ® Zip Code of Street Address Required

YMENT ☐ Bill Shipper ☐ Bill Recipient's FedEx Acct. No. Fill in line below ☐ Bill 3rd Party FedEx Acct. No. Fill in line below ☐ Bill Credit Card Fill in line below ☐ Cash
FedEx Acct. No. or Major Credit Card No. 0200-1751-4

SERVICES CHECK ONLY ONE BOX	DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	PACKAGES	WEIGHT	YOUR DECLARED VALUE (See right)	OVER SIZE
☒ PRIORITY 1 Overnight Delivery Using Your Packaging 6 ☐ OVERNIGHT LETTER (Our Packaging) 9" x 12"	1 ☐ HOLD FOR PICK-UP Give the Federal Express address where you want package held in Section H at right.	5			
OVERNIGHT DELIVERY USING OUR PACKAGING: ☐ Courier-Pak Overnight Envelope 12" x 15½" ☐ Overnight Box 12½" x 17½" x 3" A ☐ Overnight Tube 38" x 6" x 6" x 6" B ☐	2 ☐ DELIVER WEEKDAY				
	3 ☒ DELIVER SATURDAY (Extra charge applies.)				
STANDARD AIR ☐ Delivery not later than second business day	4 ☐ RESTRICTED ARTICLES SERVICE (P-1 and Standard Air Packages only. Extra charge applies)	Total 5	Total 9114	Total 0	
	5 ☐ CONSTANT SURVEILLANCE SERVICE (CSS) (Extra charge applies.)				
	6 ☐ DRY ICE _____ Lbs.				
	7 ☐ OTHER SPECIAL SERVICE _____				
	8 ☐				
	9 ☐ SATURDAY PICK-UP OR SATURDAY DROP-OFF (Extra charge applies.)				

Received At: Shipper's Door ☐ Regular Stop ☐ On-Call Stop ☒ FedEx Loc. 5
Federal Express Corp. Employee No.
Date/Time For Federal Express Use: 4/R 12...

YOUR DECLARED VALUE

DAMAGE OR LOSS

We are liable for no more than $100 per package in the event of physical loss or damage, unless you fill in a higher Declared Value to the left and document higher actual loss in the event of a claim. We charge 30¢ for each additional $100 of declared value up to the maximum shown in our Service Guide. Declared value restrictions are shown on the back of the Shipper's Copy of this airbill. We make no express or implied warranties.

DELAY

There is always a risk of late delivery or non-delivery. In the event of a late delivery Federal Express will, at your request, refund all transportation charges paid. See back of Shipper's Copy of this airbill for further information.

CONSEQUENTIAL DAMAGES

We will not be responsible or liable for any loss or damage resulting from delay, non-delivery or damage to a package, except as noted above. This includes loss of sales, income, interest, profits, attorneys fees and other costs, but is not limited to these items. Such damages are called "consequential damages."

Federal Express Use: Base Charges | Declared Value Charge | Origin Agent Charge | Other | Total Charges

PRIORITY 1 - Delivery is scheduled early next business morning most locations. It may take two or more business days if the destination is outside our primary service areas.
STANDARD AIR - Delivery is generally next business day or not later than second business day. It may take three or more business days if the destination is outside our primary service areas.

PART #2041738901 FEC-S-751-1000 REVISION DATE 10/85 PRINTED U.S.A. SR

SHIPPER'S COPY / RETAIN FOR TRACE PURPOSES.

FEDERAL EXPRESS

PLEASE COMPLETE FORMATION IN THE 5 BLOCKS OUTLINED IN ORANGE
SEE BACK OF FORM OR COMPLETE PREPARATION INSTRUCTIONS.

AIRBILL NUMBER 369728332

YOUR FEDERAL EXPRESS ACCOUNT NUMBER

DATE

OM (Your Name)

TO (Recipient's Name)

If Hold For Pick-Up or Saturday Delivery, Recipient's Phone Number 333 425-22

OMPANY

DEPARTMENT/FLOOR NO.

COMPANY

DEPARTMENT/FLOOR NO.

1

2

REET ADDRESS

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

TY

STATE

CITY

STATE

RBILL NO. 369728332

ZIP ACCURATE ZIP CODE REQUIRED FOR CORRECT INVOICING

IN TENDERING THIS SHIPMENT, SHIPPER AGREES THAT F.E.C. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM CARRIAGE HEREOF. F.E.C. DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THIS SHIPMENT. THIS IS A NON-NEGOTIABLE AIRBILL SUBJECT TO CONDITIONS OF CONTRACT SET FORTH ON REVERSE OF SHIPPER'S COPY. UNLESS YOU DECLARE A HIGHER VALUE, THE LIABILITY OF FEDERAL EXPRESS CORPORATION IS LIMITED TO $100.00. FEDERAL EXPRESS DOES NOT CARRY CARGO LIABILITY INSURANCE.

ZIP ACCURATE ZIP CODE REQUIRED FOR OVERNIGHT DELIVERY

SHIPPER'S COPY

UR NOTES/REFERENCE NUMBERS (FIRST 12 CHARACTERS WILL ALSO APPEAR ON INVOICE)

SAM 12068400 2

3

AYMENT ☐ Bill Shipper ☐ Bill Recipient's F.E.C. Acct. ☑ Bill 3rd Party F.E.C. Acct. ☐ Bill Credit Card

☐ Cash In Advance Account Number/Credit Card Number

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

SERVICES CHECK ONLY ONE BOX	DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED	PACKAGES	WEIGHT	DECLARED VALUE	O/S
PRIORITY 1 ☑ (OVERNIGHT PACKAGES) (Up to 70 LBS.)	1 ☐ HOLD FOR PICK-UP AT FOLLOWING FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE. RECIPIENT'S PHONE NUMBER IS REQUIRED.				
	2 ☐ DELIVER				
	3 ☑ SATURDAY SERVICE REQUIRED See Reverse (Extra charge applies for delivery.)				
	4 ☐ RESTRICTED ARTICLES SERVICE (P-1 and Standard Air Packages only, extra charge)				
STANDARD AIR ☐ DELIVERY 2ND BUSINESS DAY FOLLOWING PICK-UP (Up to 70 LBS.)	5 ☐ SSS (Signature Security Service required, extra charge applies)				
ORM'S AND RADIOACTIVE MATERIAL ONLY	6 ☐ DRY ICE _____ LBS.				
VERNIGHT" IS NEXT BUSINESS DAY ONDAY THROUGH FRIDAY); TWO DAYS OM ALASKA/HAWAII. SATURDAY DELIVY AVAILABLE IN CONTINENTAL U.S. E "SPECIAL HANDLING."	7 ☐ OTHER SPECIAL SERVICE _____				
	8 ☐				
	9 ☐				
		TOTAL	TOTAL	TOTAL	

4

5

RECEIVED AT
SHIPPER'S DOOR
☐ REGULAR STOP
☐ ON-CALL STOP
☑ F.E.C. LOC.

Federal Express Corporation Employee No.

DATE/TIME For Federal Express Use

AGT/PRO

AGT/PRO

ADVANCE ORIGIN

ADVANCE DESTINATION

OTHER

TOTAL CHARGES

PART #2041730761

REVISION DATE 2/83 GBF PRINTED U.S.A.

AIRBILL NUMBER 369728332

SHIPPER'S CERTIFICATION FOR RESTRICTED ARTICLES

(TYPE OR PRINT)

NO. OF PKGS.	PROPER SHIPPING NAME	CLASSIFICATION (PER 49 CFR, 172.101)	IDENTIFICATION NO.	NET QUANTITY PER PACKAGE
1	Cargo Aircraft ONLY Limited Quantity			52 gms

ADDITIONAL DESCRIPTION REQUIREMENTS FOR RADIOACTIVE MATERIALS (SEE BACK)	RADIONUCLIDE	FORM	ACTIVITY	CATEGORY OF LABELS	TRANS INDEX	PACKAGE IDENTIFICATION
	[illegible]					

THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR PASSENGER AIRCRAFT (CARGO AIRCRAFT ONLY) (DELETE-NONAPPLICABLE)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS OR TREATMENT.

I HEREBY CERTIFY THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND IN PROPER CONDITION FOR CARRIAGE BY AIR ACCORDING TO APPLICABLE NATIONAL GOVERNMENTAL REGULATIONS.

NAME AND TITLE OF PERSON SIGNING CERTIFICATION	EMERGENCY TELEPHONE NO.	SIGNATURE OF SHIPPER
[illegible] A McDonald F[illegible] [illegible] Lab	(216) 341-5[illegible]	[illegible]

U.S. ENVIRONMENTAL PROTECTION AGENCY
CLP Sample Management Office
P.O. Box 818 - Alexandria, Virginia 22313
Phone: 703/557-2490 - FTS/557-2490

SAS Number
2015 - F

SPECIAL ANALYTICAL SERVICE

PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06	4/9/86	Accu-Labs 11455 W. 48th Avenue Wheat Ridge CO. 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/10/86		Received By:
214/742-6601 (phone)	Site Name/Code: Fansteel Metals 5720	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 26	Low Conc. Soil, Sta 26, Tag #6-18901, A	
2. 2015-F 27	Low Conc Soil, Sta. 27, Tag #6-18903 A	
3. 2015-F 28	Low Conc. Soil, Sta. 28, Tag #6-18905 A	
4. 2015-F 28	Low Conc. Water, Sta. 28, Tag # 6-18799, A	
5. 2015-F 28	Low Conc. Water, Sta. 28, Tag # 6-18848, A	
6. 2015-F 28	Low Conc. Water, Sta. 28, Tag # 6-18784 A	
7. 2015-F 28	Low Conc. Water, Sta. 28, Tag #6-18847, A	
8. 2015-F 29	Low Conc. Soil, Sta. 29, Tag #6-18907, A	
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

A. Radioactive

For Lab Use Only

White - SMO Copy, Yellow - Region Copy, Pink - Lab Copy for return to SMO, Gold - Lab Copy

U.S. ENVIRONMENTAL PROTECTION AGENCY
CLP Sample Management Office
P.O. Box 818 - Alexandria, Virginia 22313
Phone: 703/557-2490 - FTS/557-2490

SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE
PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06		Accu-Labs 11485 W. 48th Avenue Wheat Ridge CO. 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/11/86		Received By:
214/742-6601 (phone)	Site Name/Code: Fansteel Metals OK3549	Attn: Cathy Kairns	

	Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1.	2015-F 10	Low Conc. Water, Sta 10, Tag # 6-19015, C	
2.	2015-F 10	Low Conc. Water, Sta 10, Tag # 6-19016, C	
3.	2015-F 10	Low Conc. Water, Sta 10, Tag # 6-19013, C	
4.	2015-F 10	Low Conc. Water, Sta 10, Tag # 6-19014, C	
5.	2015-F 10A	Low Conc. Soil, Sta. 10A, Tag # 6-19023, A	
6.	2015-F 10A	Low Conc. Soil, Sta. 10A, Tag # 6-19024, B	
7.	2015-F 10	Low Conc. Water, Sta 10, Tag # 6-19019, B	
8.	2015-F 10	Low Conc. Water, Sta. 10, Tag # 6-19021, A	
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A. Ammonia B. Fluoride C. Radioactivity

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U.S. ENVIRONMENTAL PROTECTION AGENCY
CLP Sample Management Office
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SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE

PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06		Accu-Labs Inc. 11485 W. 48th Avenue Wheat Ridge CO. 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/10/86		Received By:
214/742-6601 (phone)	Site Name/Code: Forstrel Metals OK 3549	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18911, C	
2. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18909, C	
3. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18910, C	
4. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18912, C	
5. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18916, B	
6. 2015-F 13	Low Conc. Water, Sta. 13, Tag# 6-18915, A	
7. 2015-F 14	Low Conc. Soil, Sta. 14, Tag# 6-18884, A	
8. 2015-F 14	Low Conc. Soil, Sta. 14, Tag# 6-18883, B	
9. 2015-F 17	Low Conc. Soil, Sta. 17, Tag# 6-18877, A	
10. 2015-F 17	Low Conc. Soil, Sta. 17, Tag# 6-18878, B	
11. 2015-F 18	Low Conc. Soil, Sta. 18, Tag# 6-18872, B	
12. 2015-F 18	Low Conc. Soil, Sta. 18, Tag# 6-18867, A	
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A. Ammonia B. Fluoride C. Radioactivity

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SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE

PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06	4/10 - 4/11/86	Accu-Labs	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/11/86	11485 W. 48th Avenue Wheat Ridge CO. 80033	Received By:
214/742-6607 (phone)	Site Name/Code: Fansteel Metals 5720	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 02	Low Conc. Water, Sta. 02, Tag# 6-18783, C	
2. 2015-F 02	Low Conc. Water, Sta. 02, Tag# 6-18857, C	
3. 2015-F 02	Low Conc. Water, Sta. 02, Tag# 6-18727, C	
4. 2015-F 02	Low Conc. Water, Sta. 02, Tag# 6-18859, C	
5. 2015-F 20	Low Conc. Soil, Sta. 20, Tag# 6-18942, A	
6. 2015-F 20	Low Conc Soil, Sta. 20, Tag# 6-18941, B	
7. 2015-F 25	Low Conc. Water Rinsate, Sta. 25, Tag# 6-19008, A	
8. 2015-F 25	Low Conc. Water Rinsate, Sta. 25, Tag# 6-19010, B	
9. 2015-F 16	Low Conc Soil, Sta. 16, Tag# 6-18866, A	
10. 2015-F 16	Low Conc Soil, Sta. 16, Tag# 6-18863, B	
11. 2015-F 12	Low Conc Soil, Sta. 12, Tag# 6-18931, B	
12. 2015-F 12	Low Conc. Soil, Sta. 12, Tag# 6-18899, A	
13. 2015-F 15	Low Conc. Soil, Sta. 15, Tag# 6-18896, A	
14. 2015-F 15	Low Conc. Soil, Sta. 15, Tag# 6-18890, B	
15. 2015-F 11	Low Conc. Soil, Sta. 11, Tag# 6-18935, A	
16. 2015-F 11	Low Conc. Soil, Sta. 11, Tag# 6-18934, B	
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A. Fluoride B. Ammonia C. Radioactivity

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SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE
PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06	4/10/86	Accu-Labs 11485 W. 48th Avenue Wheat Ridge CO 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/11/86		Received By:
214/742-6601 (phone)	Site Name/Code: Fansteel Metals	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 21	High Conc. Water, Sta. 21, Tag # 6-18953	
2. 2015-F 21	High Conc. Water, Sta. 21, Tag # 6-18955	
3. 2015-F 21	High Conc. Water, Sta. 21, Tag # 6-18956 — A, B, C	
4. 2015-F 21	High Conc. Water, Sta. 21, Tag # 6-18957	
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A. Ammonia B. Fluoride C. Radioactivity

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SAS Number
2015 F

SPECIAL ANALYTICAL SERVICE

PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region VI	4/10/86	Accu - Labs	
Sampling Contact:	Date Shipped:	11485 W. 48th Ave.	Date Samples Rec'd:
Gene McDonald (name)	4/11/86	Wheat Ridge Co. 80033	
	Site Name/Code:		Received By:
(214) 742-6601 (phone)	Fansteel Metals 5720	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 07	Low Conc. Water, Sta. 07, Tag 6-18790, A	
2. 2015-F 07	Low Conc. Water, Sta. 07, Tag 6-18795, B	
3. 2015-F 07	Low Conc. Water, Sta. 07, Tag 6-18791, C	
4. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18792, C	
5. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18794, C	
6. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18793, C	
7. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18789, C	
8. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18796, C	
9. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18785, C	
10. 2015-F07	Low Conc. Water, Sta. 07, Tag 6-18787, C	
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A. Ammonia B. Fluoride C. Radioactivity

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SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE
PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06	4/10/86	Accu-Labs 11485 W. 48th Avenue Wheat Ridge CO. 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/11/86		Received By:
214/742-6601 (phone)	Site Name/Code: Lamstec Metals OK 3549	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 07	Low Conc Water, Sta. 07, Tag# 6-18793, C	
2. 2015-F 07	Low Conc. Water, Sta. 07, Tag# 6-18794, C	
3. 2015-F 07	Low Conc. Water, Sta. 07, Tag# 6-18792, C	
4. 2015-F 07	Low Conc. Water, Sta. 07, Tag# 6-18791, C	
5. 2015-F 07	Low Conc. ~~Sediment~~ Water, Sta. 07 Tag# 6-18790, A	
6. 2015-F 07	Low Conc. ~~Sed~~ Water, Sta. 07 Tag# 6-18795, B	
7.	~~no Tag#, A~~	
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no ~~High Hazard~~ A. Ammonia B. Fluoride C. Radioactivity

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SAS Number
2015-F

SPECIAL ANALYTICAL SERVICE
PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region 06	4/9 - 4/10/86	Accu-Labs 11455 W. 48th Avenue Wheat Ridge CO. 80033	Date Samples Rec'd:
Sampling Contact: Gene McDonald (name)	Date Shipped: 4/10/86		Received By:
214/742-6601 (phone)	Site Name/Code: Fansteel Metals 5720	Attn: Cathy Kairns	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 2015-F 24	Low Conc. Water, sta. 24, Tag # 6-18825, A	
2. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18815, A	
3. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18816, B	
4. 2015-F 24	Low Conc. Water, sta. 24, Tag # 6-18826, B	
5. 2015-F 28	Low Conc. Water, sta. 28, Tag # 6-18750, B	
6. 2015-F 28	Low Conc. Water, sta. 28, Tag # 6-18748, A	
7. 2015-F 09A	Low Conc. Soil, sta. 09A, Tag # 6-18835, A	
8. 2015-F 02	Low Conc. Water, sta. 02, Tag # 6-18728, B	
9. 2015-F 02	Low Conc. Water, sta. 02, Tag # 6-18726, A	
10. 2015-F 09A	Low Conc. Soil, sta. 09A, Tag # 6-18834, B	
11. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18814, C	
12. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18841, C	
13. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18813, C	
14. 2015-F 09	Low Conc. Water, sta. 09, Tag # 6-18840, C	
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A. Ammonia B. Fluoride C. Radioactivity

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F 7005 Rev. A

SAMPLE LOG-IN SHEET

DATE: 4-16-86

SAMPLE CUSTODIAN SIGNATURE: Connie Heitt

DOCUMENT CONTROL #

CIRCLE THE APPROPRIATE RESPONSE:

CASE NUMBER 5720

AIRBILL NUMBER 891031772 369728332

1. Custody Seals on Shipping Containers — present/absent; intact/not intact
2. Chain-of-Custody — present/absent
3. Sample Tags — present/absent tie-on/adhesive; Sample Tag Numbers — listed/not listed on chain-of-custody
4. SMO Forms — present/absent
5. Bills of Lading — present/absent
6. Custody Seals on Sample Containers — present/absent; intact/not intact

DATE RECEIVED	TIME RECEIVED	CHAIN-OF-CUSTODY RECORD NUMBER	SMO SAMPLE NUMBERS	CORRESPONDING SAMPLE TAG NUMBERS	CORRESPONDING ASSIGNED LAB NUMBERS	DOES INFORMATION ON CUSTODY RECORDS, TRAFFIC REPORTS, AND SAMPLE TAGS AGREE?	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
4-14-86	8:30	6-6345	MFO 129	6-18791, 6-18793	55-5720-16-1	✓	✓
				6-18788, 6-18786	-1	✓	✓
				6-18792, 6-18794	-1	✓	✓
				6-18795, 6-18790	-1	✓	✓
		6-6351	MFO 132	6-19013, 6-19014	-2	✓	✓
				6-19015, 6-19016	-2	✓	✓
				6-19018, 6-19019	-2	✓	✓
				6-19030, 6-19021	-2	✓	✓
		6-6341	MFO 135	6-18910, 6-18910	-3	✓	✓
				6-18909, 6-18911	-3	designation on sample	✓
				6-18913, 6-18912	-3	top page of form	✓
				6-18916, 6-18915	-3	13 and 13A	✓
		6-6340	MFO 145	6-19008, 6-19009	-4	✓	✓
				6-19010, 6-19011	-4	✓	✓
		6-6340	MFO 146	6-18883, 6-18887	-5	✓	✓
				6-18877, 6-18889	-5	✓	✓
✓	✓	6-6349	MFO 152	6-18780, 6-18785	-6	✓	✓

55-5720-6-0007

Accu-Labs Research, Inc.

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SAMPLE LOG-IN SHEET

DATE: 4-16-86

SAMPLE CUSTODIAN SIGNATURE: Connie Hatt

DOCUMENT CONTROL #

CIRCLE THE APPROPRIATE RESPONSE:

CASE NUMBER 5720

AIRBILL NUMBER 891031772 369728332

1. Custody Seals on Shipping Containers — present/absent; intact/not intact
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3. Sample Tags — present/absent tie-on/adhesive; Sample Tag Numbers listed/not listed on chain-of-custody
4. SMO Forms — present/absent
5. Bills of Lading — present/absent
6. Custody Seals on Sample Containers — present/absent; intact/not intact

DATE RECEIVED	TIME RECEIVED	CHAIN-OF-CUSTODY RECORD NUMBER	SMO SAMPLE NUMBERS	CORRESPONDING SAMPLE TAG NUMBERS	CORRESPONDING ASSIGNED LAB NUMBERS	DOES INFORMATION ON CUSTODY RECORDS, TRAFFIC REPORTS, AND SAMPLE TAGS AGREE?	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
4-14-86	8:30	6-6349	MFD152	6-18896, 6-18898	55-5720-16-6	✓	✓
		6-6348	F5243	6-18953, 6-18955	-7	✓	✓
			↓	6-18952, 6-18957	-7	✓	✓
		6-6340	MFD 133	6-18935, 6-18940	-8	Samples A+B incorrectly	✓
			↓	6-18934	-8	labeled as FC 147	✓
		6-6340	MFD 134	6-18899	-9	Samples A+B incorrectly	✓
			↓	6-18898, 6-18931	-9	labeled as FC 148	✓
		6-6341	MFD 137	6-18883, 6-18885	-10	✓	✓
			↓	6-18884	-10	✓	✓
		6-6340	MFD 138	6-18893, 6-18896	-11	✓	✓
			↓	6-18890	-11	✓	✓
		6-6340	MFD 139	6-18866, 6-18863	-12	✓	✓
			↓	6-18865	-12	✓	✓
		6-6341	MFD 140	6-18878, 6-18880	-13	✓	✓
			↓	6-18877	-13	✓	✓
		6-6341	MFD 141	6-18873, 6-18872	-14	✓	✓
↓	↓		↓	6-18867	-14	✓	✓

55-5720-6-0007

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DOCUMENT CONTROL #

CIRCLE THE APPROPRIATE RESPONSE:

CASE NUMBER 5720

AIRBILL NUMBER 891031772 369728332

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2. Chain-of-Custody — present/absent
3. Sample Tags — present/absent tie-on/adhesive; Sample Tag Numbers — listed/not listed on chain-of-custody
4. SMO Forms — present/absent
5. Bills of Lading — present/absent
6. Custody Seals on Sample Containers — present/absent; intact/not intact

DATE RECEIVED	TIME RECEIVED	CHAIN-OF-CUSTODY RECORD NUMBER	SMO SAMPLE NUMBERS	CORRESPONDING SAMPLE TAG NUMBERS	CORRESPONDING ASSIGNED LAB NUMBERS	DOES INFORMATION ON CUSTODY RECORDS, TRAFFIC REPORTS, AND SAMPLE TAGS AGREE?	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
4-14-86	8:30	6-6340	MFD 143	6-18942, 6-18944	55-5720-16-15	✓ ✓	✓
			↓	6-18943	-15	✓ ✓	✓
		6-6351	MFD 147	6-19023, 6-19024	-16	✓ ✓	✓
			↓	6-19025	-16	✓ ✓	✓

55-5720-6-0007

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

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ALR No.: 55-5720-16

Date Rec'd: 4-14-86

Date Due:

P.O. or Project No.:

Page 1 of 4

Data Transfer Checked:

ALR Designation		55-5720-16-1	-2	-3	-5	-6
Sponsor Designation		MFD-129	MFD132	MFD135	MFD146	MFD152
DETERMINATION	UNITS					
Gross Alpha	pCi/L	-11 ± 26	6 ± 10	-40 ± 54	2 ± 4	-5 ± 28
Gross Beta ± counting error		670 ± 40	8 ± 8	870 ± 90	1 ± 2	600 ± 50
Radium-226		0.4 ± 0.2	0.5 ± 0.2	0.1 ± 0.2	0.0 ± 0.2	0.1 ± 0.2
Uranium-238		0.83 ± 0.32	0.61 ± 0.30	0.24 ± 0.26	-0.07 ± 0.21	2.2 ± 0.4
Uranium-235		-0.02 ± 0.08	0.03 ± 0.10	0.01 ± 0.10	-0.02 ± 0.08	0.13 ± 0.13
Uranium-234		0.98 ± 0.34	1.1 ± 0.4	0.24 ± 0.26	-0.09 ± 0.20	2.5 ± 0.4
Lead-210		0.2 ± 0.6	0.1 ± 0.6	-0.1 ± 0.6	0.3 ± 0.6	~~0.6~~ 0.4 ± 0.6
Polonium-210		0.9 ± 0.6	-0.2 ± 0.5	0.5 ± 0.6	0.1 ± 0.5	0.8 ± 0.8
Thorium-232		0.02 ± 0.04	0.02 ± 0.03	0.00 ± 0.01	0.02 ± 0.03	0.06 ± 0.06
Thorium-230	✓	0.29 ± 0.17	0.07 ± 0.12	0.19 ± 0.30	0.02 ± 0.11	0.25 ± 0.16

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [illegible] Date 7/14/86

55-5720-6-0009

These samples are scheduled to be disposed of 45 days after the date of this report.

$5005.00.

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Client: EPA

Address:

Copy:

ALR No.: 55-5720-16

Date Rec'd:

Date Due:

P.O. or Project No.:

Page 2 of 4

Data Transfer Checked:

ALR Designation		-1	-2	-3	-5	-6
Sponsor Designation		MFD-129	MFD-132	MFD-135	MFD-146	MFD-152
DETERMINATION	UNITS					
Thorium -228 ± counting error	pCi/L	-0.04 ± 0.17	0.16 ± 0.20	~~-0.15~~ -0.09 ± 0.19	0.02 ± 0.18	-0.06 ± 0.16
Thorium -227		-0.09 ± 0.12	-0.09 ± 0.12	-0.09 ± 0.12	-0.11 ± 0.14	-0.11 ± 0.14
Radium -228		-0.2 ± 0.8	0.7 ± 1.0	-0.3 ± 0.7	-0.4 ± 1.0	0.2 ± 0.8
Gamma Spec:						
K-40 ± cntg error		1500 ± 400	None Detected	790 ± 350	None Detected	180 ± 340

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by RS Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

55-5720-6-0009

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ALR No.: 55-5720-16

Date Rec'd: 4-14-86

Date Due:

P.O. or Project No.:

Page 3 of 4

Data Transfer Checked:

ALR Designation		55-5720-16-7				
Sponsor Designation		F 5243				
DETERMINATION	UNITS					
Gross Alpha		4200 ± 400				
Gross Beta ± counting error*	pCi/L	2500 ± 100				
Radium -226		25 ± 18				
Uranium -238		1800 ± 100				
Uranium -235		55 ± 14				
Uranium -234		1800 ± 100				
Lead -210		270 ± 70				
Polonium -210		34 ± 22				
Thorium -232		~~0.00 ± 0.018~~	0.0 ± 0.5			
Thorium -230		~~0.20 ± 0.8~~	10 ± 8			

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [signature] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

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ALR No.: 55-5720-16

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Date Due:

P.O. or Project No.:

Page 4 of 4

Data Transfer Checked:

ALR Designation		-7				
Sponsor Designation		F 5243				
DETERMINATION	UNITS					
Thorium-228 ± counting error	pCi/g	4 ± 10				
Thorium-227		-5.4 ± 7.0				
Radium-228		33 ± 80				
Gamma Spec:						
K-40 ± cntg. error		5300 ± 1800				

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [signature] Date 7/14/86

55-5720-6-0009

These samples are scheduled to be disposed of 45 days after the date of this report.

*For a more complete discussion of the LLD, see "HASL Procedures Manual," John H. Harley, editor, USERDA, HASL-300 (revised annually) and Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination-Application to Radiochemistry," Anal. Chem. 40, 1968, pp. 586-93, and Donn, J.J. and R.L. Wolke, "The Statistical Interpretation of Counting Data from Measurements of Low-Level Radioactivity," Health Physics, Vol. 32, 1977, pp. 1-14.

EPA Sample No.	ALR Sample ID No.	Analysis Lower Limit of Detection			
		Th-232	Th-230	Th-228	Th-227
1. F 5244	54-5720-9-6	0.08	0.11	0.30	0.20
2. F 5245	54-5720-9-7	0.17	0.25	0.41	0.48
3. F 5247	54-5720-9-8	0.04	0.04	0.21	0.09
4. F 5246	54-5720-9-9	0.11	0.14	0.24	0.40
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Document Control No. 54-5720-6-0014

*For a more complete discussion of the LLD, see "HASL Procedures Manual," John H. Harley, editor, USERDA, HASL-300 (revised annually) and Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination-Application to Radiochemistry," Anal. Chem. 40, 1968, pp. 586-93, and Donn, J.J. and R.L. Wolke, "The Statistical Interpretation of Counting Data from Measurements of Low-Level Radioactivity," Health Physics, Vol. 32, 1977, pp. 1-14.

EPA Sample No.	ALR Sample ID No.	Analysis Lower Limit of Detection			
		Ra-228	γ Spec:	Pb-214	Bi-214
1. F 5244	54-5720-9-6	1.2		0.08	0.15
2. F 5245	54-5720-9-7	1.2		0.11	0.20
3. F 5247	54-5720-9-8	1.0		0.11	0.20
4. F 5246	54-5720-9-9	1.6		0.14	0.25
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Document Control No. 54-5720-6-0014

*For a more complete discussion of the LLD, see "HASL Procedures Manual," John H. Harley, editor, USERDA, HASL-300 (revised annually) and Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination-Application to Radiochemistry," Anal. Chem. 40, 1968, pp. 586-93, and Donn, J.J. and R.L. Wolke, "The Statistical Interpretation of Counting Data from Measurements of Low-Level Radioactivity," Health Physics, Vol. 32, 1977, pp. 1-14.

EPA Sample No.	ALR Sample ID No.	Analysis Lower Limit of Detection			
		Pb-212	Tl-208	Cs-137	Co-60
1. F 5244	54-5720-9-6	0.07	0.05	0.03	0.06
2. F 5245	54-5720-9-7	0.09	0.07	0.04	0.08
3. F 5247	54-5720-9-8	0.09	0.07	—	0.08
4. F 5246	54-5720-9-9	0.11	0.08	—	0.10
5.					
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Document Control No. 54-5720-6-0014

*For a more complete discussion of the LLD, see "HASL Procedures Manual," John H. Harley, editor, USERDA, HASL-300 (revised annually) and Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination-Application to Radiochemistry," Anal. Chem. 40, 1968, pp. 586-93, and Donn, J.J. and R.L. Wolke, "The Statistical Interpretation of Counting Data from Measurements of Low-Level Radioactivity," Health Physics, Vol. 32, 1977, pp. 1-14.

EPA Sample No.	ALR Sample ID No.	Analysis Lower Limit of Detection			
		K-40	~~Co-60~~ 35		
1 F 5244	54-5720-9-6	2.5			
2 F 5245	54-5720-9-7	3.4			
3 F 5247	54-5720-9-8	3.4			
4 F 5246	54-5720-9-9	4.1			
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Document Control No. 54-5720-6-0014

PAGE 1

F8248

EPA RADIOCHEMICAL ANALYSIS CONTROL SHEET

EPA#	Radium-226 #	S	F	A	Radium-228 #	S	F	A	Gross Alpha Gross Beta #	S	F	A	Uranium #	S	F	A	Other #	S	F	A	Date Rec'd	Date Due	Date Appv'd	Date Typed	Sample Storage Location	Sample Type WATER	VEG.	SOIL	FILTER	OTHER	Comment
55-5720-16									6	5/8	X	[illegible]									4/14		7/14		RCS, m	X					Beta only 1-2-3-5-6-7
	6	5/19	X	[illegible]	6	5/2	5/13	KS					6	Isotopic 5/24	X	AN					4/14					X					Isotopic U
																	6	4/28	X	[illegible]	4/14					X					Pb-210
																	6	5/20	5/24	KS	4/14					X					PO-210
																	6	5/16	X	PG	4/14					X					Isotopic Thorium
																	6	4/29	X	[illegible]	4/14					X					Gamma Spec.

55-5720-6-0010

6 [illegible] 6 [illegible] 6 [illegible] 6 Isotopic [illegible] Pb-6 [illegible] Pb-6 [illegible] Th-6 [illegible] P-6 [illegible]

Accu-Labs Research, Inc.

F 7033

Transmittal Letter

Case Number: 5720

SAS Number: 2015-F

Date Received: 4-14-86

Date Reported: 7-15-86

Approval: Bud Summers
Radiochemistry Supervisor

54-5720-6-0025

Accu-Labs Research, Inc.

INV. 25803

REMIT TO: 11485 W. 48th Avenue
Wheat Ridge, Colorado 80033
(303) 423-2766

TO: Viar and Company, Inc.
300 North Lee Street Suite 200
Alexandria, VA 22314
Attn: David H. Stewart, Vice President

INVOICE DATE: July 21, 1986

Case No. 5720

SAS No. 2015 F

ALR No. 54-5720-9

Client No.

Description Sample Numbers MFD 126, MFD 131, F 5244, F 5245, F 5247, F 5246		Rate	Total
DETERMINATION	**QUANTITY**		
Test (Soils)			
Gross Alpha/Beta	5	$ 35.00	$ 175.00
Gamma Spectral	5	130.00	650.00
Ra-226	6	70.00	420.00
Isotopic U	6	85.00	510.00
Pb-210	6	100.00	600.00
Po-210	6	80.00	480.00
Isotopic Th	6	150.00	900.00
Ra-228	6	75.00	450.00
Test (Water)			
Gross Alpha/ Beta	3	35.00	105.00
Gamma Spectral	3	130.00	390.00
Ra-226	3	70.00	210.00
Isopic U	3	85.00	255.00
Pb-210	3	100.00	300.00
Po-210	3	70.00	210.00
Isotopic Th	3	150.00	450.00
Ra-228	3	75.00	225.00
			$ 6330.00
Sample disposal			300.00
			$ 6630.00

Shipment Date: 4-10-86

Shipment Number Fed EX #891031584

1½% Per month [illegible]
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TO ALL BILLS OVER 30 DAYS.

Please pay from invoice. Terms: Net 30 Days

Accu-Labs Research Inc.

CHAIN OF CUSTODY RECORD

PROJ. NO. PROJECT NAME: ALR Special γ spec. work

SAMPLERS: (Signature) Bud Summers

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS
	4/29/86				54-5720-6	1	Soil for γ spec analysis
					54-5720-7	1	
					54-5720-8	1	
					54-5720-9	1	
					54-5720-77	1	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Bud Summers	4/29/86	[illegible]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Field Files

54-5720-6-0024

Accu-Labs Research, Inc.

CHAIN OF CUSTODY RECORD

PROJ. NO. PROJECT NAME: ALR Special γ spec. work

SAMPLERS: (Signature) Bud Summers

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS							REMARKS
	4/29/86				54-5720-3	1							Water for Total γ spec. and
					54-5720-5	1							
					55-5720-1	1							
					55-5720-2	1							
					55-5720-3	1							
					55-5720-5	1							
					55-5720-6	1							
					55-5720-6A	1							
					55-5720-7	1							Contains some HF; Very Limited volume for analysis; γ spec analysis

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Bud Summers	4/29/86	MB by 5/2/86 as per lot sheet			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Field Files

54-5720-6-0024

Accu-Labs Research, Inc.

INV. 25802

REMIT TO: 11485 W. 48th Avenue
Wheat Ridge, Colorado 80033
(303) 423-2766

TO: Viar and Company, Inc,
300 North Lee St. Suite 200
Alexandria, VA 22314
Attn: David H. Stewart, Vice President

INVOICE DATE: July 21, 1986

Case No. 5720

ALR No. 55-5720-9

SAS No. 2015F

Client No.

Description Sample Numbers MFD-129, MFD-132, MFD 135, MFD 146, MFD 152, F 5243		Rate	Total
DETERMINATION	**QUANTITY**		
TEST (Water)			
Gross Alpha/Beta	7	$ 35.00	$ 245.00
Gamma Spectral	7	130.00	780.00
Ra-226	7	70.00	490.00
Isotopic U	7	85.00	595.00
Pb-210	7	100.00	700.00
Po-210	7	70.00	490.00
Isotopic Th	7	150.00	1050.00
Ra-228	7	75.00	525.00
			$4875.00

Shipment Number

Fed. EX. #891031772 and 369728332

1½% Per Month Interest Charge
WILL BE ADDED
TO ALL BILLS OVER 30 DAYS.

Please pay from invoice. Terms: Net 30 Days

ENVIRONMEN[illegible] PROTECTION AGENCY
Office of Enforcement

INC[illegible]genics Water & Soils

REGION[illegible]
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) Calli Hatt, Welden Ay, Alec Chrosp

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity	Ammonia	Fluoride	Metals	Cyanide		REMARKS Tag #	In Organic TF #
09	4/9/86	1610-1625		X	Downstream Waterfalls 100 yds South of Bridge	4	X						6-18813, 6-18814, 6-18840, 6-18841	MFD131
09	4/9/86	1610-1625		X	Downstream Water Falls 100 yds South of Bridge	1		X					6-18815	MFD131
09	4/9/86	1610-1625		X	Downstream Water Falls 100 yds South of Bridge	1			X				6-18816	MFD131
09	4/9/86	1610-1625		X	Downstream Water Falls 100 yds South of Bridge	1				X			6-18811	MFD131
09	4/9/86	1610-1625		X	Downstream Waterfalls 100 yds South of Bridge	1					X		6-18812	MFD131
09A	4/9/86	1625-1635		X	Downstream Water Falls 100 yds South of Bridge	3		X	X	X	X		6-18835, 6-18834, 6-18833 (6-18844)	MFD125 (Wrong sample)
24	4/10/86	1615-1630		X	Private	3 (4)		X	X	X	X		6-18823, 6-18826, 6-18825	MFD144 18824
28	4/9/86	1726-1730		X	S.E. Corner Landfill Pond	4		X	X	X	X		6-18746, 6-18748, 6-18750, 6-18747	MFD126
02	4/10/86	1020-1025		X	MW07	4		X	X	X	X		6-18725, 6-18728, 6-18729, 6-18726	MFD128

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Alec Chrosp, Calli Hatt, Welden Ay	4/10/86 1700	Federal Express			
Relinquished by: (Signature) Calli Hatt	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Connie Hatt	Date / Time 4/11/86 8:30	Remarks Fed. Express Airbill # 891031584	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

54-5720-6-0005

6—0336

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals
SAMPLERS: (Signature) Bill Paul, Ed Fry, Collie Hiatt, James A. Trusley

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity						REMARKS
~~02~~ 28	4/9/86	1726-1740		X	SE Corner Landfill Pond	4	X						6-18749, 6-18848, 6-18784, 6-18847 MFD 126 F5244
28	4/9/86	1726 1728		X	SE Corner Landfill Sed.	1	X						6-18905 ✓ F5246 ~~MFD126~~ EF
26	4/9/86	1628 1631		X	Midpoint Service Bldg. & Fence	1	X						6-18901 ✓ F5244
27	4/9/86	1650 1653		X	Drainage Path Tailing Chute	1	X						6-18903 ✓ F5245
29	4/9/86	1733 1738		X	SW corner Landfill	1	X						6-18902 F5247

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Paul, Ed Fry, Collie Hiatt, James A. Trusley	4/10/86 1700	Federal Express 65190112			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Connie Hiatt	Date / Time 4/11/86 8:30	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

54-5720-6-0005

6—6338

Accu-Labs Research, Inc. F 7005 Rev. A

SAMPLE LOG-IN SHEET

DATE: 4-11-86

SAMPLE CUSTODIAN SIGNATURE: Connie Hiatt

DOCUMENT CONTROL #

CIRCLE THE APPROPRIATE RESPONSE:

CASE NUMBER 5720

AIRBILL NUMBER 891031584

1. Custody Seals on Shipping Containers — present/absent; intact/not intact
2. Chain-of-Custody — present/absent
3. Sample Tags — present/absent; tie-on/adhesive
   Sample Tag Numbers — listed/not listed on chain-of-custody
4. SMO Forms — present/absent
5. Bills of Lading — present/absent
6. Custody Seals on Sample Containers — present/absent; intact/not intact

DATE RECEIVED	TIME RECEIVED	CHAIN-OF-CUSTODY RECORD NUMBER	SMO SAMPLE NUMBERS	CORRESPONDING SAMPLE TAG NUMBERS	CORRESPONDING ASSIGNED LAB NUMBERS	DOES INFORMATION ON CUSTODY RECORDS, TRAFFIC REPORTS, AND SAMPLE TAGS AGREE?	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
4-11-86	8:30	6-6336	MFD 125	6-18835, 6-18834	54-5720-9-1	#18824 listed wrong	✓
				6-18833	-1		✓
			MFD 124	6-18825, 6-18822	-2	✓	✓
				6-18824, 6-18826	-2		✓
			MFD 126	6-18846, 6-18845	-3	✓	✓
				6-18850, 6-18847	-3		✓
			MFD 144	6-18823, 6-18824	-4	#18824 not listed	✓
				6-18826, 6-18825	-4		✓
			MFD 131	6-18813, 6-18814	-5	No SMO# on F, MH, RC	✓
				6-18840, 6-18841	-5		✓
				6-18815, 6-18816	-5		✓
				6-18811, 6-18812	-5		✓
		6-6338	F 5244	6-18901	-6	✓	✓
			F 5245	6-18903	-7	✓	✓
			F 5247	6-18907	-8	✓	✓
			~~F 5246~~ MFD 126	6-18849, 6-18848	-3	No SMO# on	✓
				6-18784, 6-18847	-3	bottles for RC	
			F 5246	6-18905	-9		

54-5720-6-0007

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7-15-86

P.O. or Project No.:

Page 1 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-3	-5	-6	-7	-8
Sponsor Designation		MFD 126	MFD 131	F 5244	F 5245	F 5247
DETERMINATION	UNITS					
Gross Alpha ± cnt's error	pCi/L	35 ± 55	5 ± 10			
Gross Beta		660 ± 70	3 ± 5			
Ra-226		1.6 ± 0.3	0.1 ± 0.2			
U-238		1.0 ± 0.4	0.40 ± 0.32			
U-235		0.06 ± 0.14	0.01 ± 0.12			
U-234		0.97 ± 0.51	0.51 ± 0.47			
Pb-210		0.4 ± 0.6	0.1 ± 0.7			
Po-210		−0.1 ± 0.5	0.1 ± 0.5			
Th-232		0.00 ± 0.01	0.02 ± 0.03			

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [illegible] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

5770.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

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ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7-15-86

P.O. or Project No.:

Page 2 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-3	-5	-6	-7	-8
Sponsor Designation		MFD 126	MFD 131	F 5244	F 5245	F 5247
DETERMINATION	UNITS					
Th-230 ± Cntg Error	pCi/l	0.05 ± 0.14	0.13 ± 0.13			
Th-228		-0.03 ± 0.18	0.02 ± 0.17			
Th-227		-0.09 ± 0.12	-0.09 ± 0.12			
Ra-228		0.6 ± 0.7	0.4 ± 0.8			
Gamma Spectrometry						
Pb-214 ± Cntg error		-5 ± 10	19 ± 11			
Bi-214		11 ± 19	-15 ± 17			
K-40		-170 ± 330	None Detected			
Co-60		11 ± 9	None Detected			

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by BS Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7/15/86

P.O. or Project No.:

Page 3 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-3	-5	-6	-7	-8
Sponsor Designation		MFD-126	MFD-131	F5244	F5245	F5247
DETERMINATION	UNITS					
Gross Alpha ± cntg. error	pCi/g(dry)			2300 ± 100	3300 ± 100	34 ± 15
Gross Beta ±				440 ± 20	1100 ± 100	21 ± 5
Ra-226 ±				120 ± 10	190 ± 10	1.2 ± 0.2
U-238				100 ± 10	140 ± 10	0.88 ± 0.23
U-235				4.2 ± 0.8	6.5 ± 1.1	0.00 ± 0.09
U-234				110 ± 10	140 ± 10	0.95 ± 0.24
Pb-210				100 ± 10	48 ± 2	1.0 ± 0.7
Po-210				90 ± 2	42 ± 2	1.3 ± 0.2
Th-232				40 ± 2	170 ± 10	1.1 ± 0.2

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [illegible] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6.0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7-15-86

P.O. or Project No.:

Page 4 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-3	-5	-6	-7	-8
Sponsor Designation		mFD 126	mFD 131	F 5244	F 5245	F 5247
DETERMINATION	UNITS					
Th-230 ± Cntg Error	pCi/g (dry)			170 ± 10	200 ± 10	0.95 ± 0.23
Th-228				39 ± 2	170 ± 10	1.1 ± 0.3
Th-227				7.3 ± 1.3	13 ± 3	0.00 ± 0.01
Ra-228				31 ± 2	170 ± 10	0.7 ± 0.7
Gamma Spectrometry:						
Pb-214 ± Cntg Error				43 ± 1	110 ± 10	0.66 ± 0.10
Bi-214				51 ± 1	140 ± 10	0.60 ± 0.14
Pb-212				26 ± 1	130 ± 10	0.55 ± 0.07
Tl-208				6.0 ± 0.2	45 ± 1	0.26 ± 0.06

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by RB Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7-15-86

P.O. or Project No.:

Page 5 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-3	-5	-6	-7	-8
Sponsor Designation		MFD 126	MFD 131	F 5244	F 5245	F 5247
DETERMINATION	UNITS					
Gamma Spectrometry:	pCi/g (dry)					
Cs-137				1.0 ± 0.1	1.9 ± 0.1	None Detected
Co-60				0.09 ± 0.05	−0.01 ± 0.04	0.25 ± 0.08
Mn-54				None Detected	None Detected	None Detected
K-40				5.7 ± 1.5	3.3 ± 1.8	3.5 ± 1.8

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [signature] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7-15-86

P.O. or Project No.:

Page 6 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-9				
Sponsor Designation		F 5246				
DETERMINATION	UNITS					
Gross Alpha ± Cntg Error	pCi/g(dry)	500 ± 50				
Gross Beta		140 ± 10				
Ra-226		30 ± 1				
U-238		9.0 ± 1.2				
U-235		0.00 ± 0.26				
U-234		8.6 ± 1.2				
Pb-210		23 ± 1				
Po-210		24 ± 1				
Th-232		17 ± 1				

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [illegible] Date 2/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7/15/86

P.O. or Project No.:

Page 7 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-9				
Sponsor Designation		F5246				
DETERMINATION	UNITS					
Th-230 ± cntg error	pCi/g(dry)	38 ± 2				
Th-228		18 ± 1				
Th-227		2.5 ± 1.6				
Ra-228		19 ± 2				
Gamma Spectrometry:						
Pb-214 ± cntg error		17 ± 1				
Bi-214		19 ± 1				
Pb-212		16 ± 1				
Tl-208		4.2 ± 0.2				

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [signature] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

RADIOCHEMISTRY SAMPLE RECEIVED
CONTROL SHEET

F8012 D

Client: EPA

Address:

Copy:

ALR No.: 54-5720-9

Date Rec'd: 4-11-86

Date Due: 7/15/86

P.O. or Project No.:

Page 8 of 8

Data Transfer Checked:

ALR Designation		54-5720-9-9				
Sponsor Designation		F 5246				
DETERMINATION	UNITS					
Gamma Spectrometry:	pCi/g (dry)					
Cs-137	↓	None Detected				
Co-60	↓	0.19 ± 0.08				
Mn-54	↓	None Detected				
K-40	↓	16 ± 3				

*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

Approved for Typing by [illegible] Date 7/14/86

These samples are scheduled to be disposed of 45 days after the date of this report.

54-5720-6-0009

PAGE NO. 1

F8248

EPA RADIOCHEMICAL ANALYSIS CONTROL SHEET

EPA#	Radium-226 #	S	F	A	Radium-228 #	S	F	A	Gross Alpha Gross Beta #	S	F	A	Uranium #	S	F	A	Other #	S	F	A	Date Rec'd	Date Due	Date Appv'd	Date Typed	Sample Storage Location	Sample Type WATER	VEG.	SOIL	FILTER	OTHER	Comment
54-5720-9	2	5/19	X	JD	2	5/19	5/23	KS	2	5/8	X	6gt	2	ISOTOPIC 5/11	X	AN	2	9/28	X	6gt	4/11		7/14		RC-S	X					3x5 Pb-210, Po-210
↓	4	5/19	X	JD	4	5/19	5/23	KS	4	5/8	X	6gt	4	ISOTOPIC 5/11	X	AN	4	9/28	X	6gt	4/11		↓					X			6-9 Pb-210, Po-210
																	2	5/16	X	PG	4/11				RC-S	X					3x5 Isotopic Thorium
																	4	5/16	X	PG	4/11							X			6-9 Isotopic Thorium
																	2	4/28	X	[illegible]	4/11				RC-S	X					GAMMASPEC 3x5
↓																	4	4/28	X	[illegible]	4/11		↓					X			↓ ↓ 6-9

54-5720-6 -0010

6 [illegible] 6 [illegible] 6 [illegible] 6 Isotopic [illegible] Pb = 6 [illegible] Po = 6 [illegible] Th = 6 [illegible] γ = 6 [illegible]

F 7029 Rev.

QC Report No. 54

Calibration Verification

Lab Name: Accu-Labs Research, Inc.

Date 7-14-86

SAS No. 2015 F

Case No. 5720

Units pCi/g (dry)

Analysis	Analyzed Value ± uncertainty	True Value ± uncertainty	% Recovery	Source
1. Gross Alpha				*
2. Gross Beta				*
3. Ra-226	1.18 ± 0.26	1.55 ± 0.15	76	NBS Mancos Shale
4. Ra-228	1.1 ± 0.8	1.30 ± 0.21	85	NBS Mancos Shale
5. ~~H-3~~ U-234	234 ± 8	253 ± 43	92	EPA Dilute Pitchblend
6. ~~Sr-90~~ U-235	6.7 ± 1.5	12 ± 2	56	EPA Dilute Pitchblend
7. U-238	220 ± 8	253 ± 43	87	EPA Dilute Pitchblend
8. ~~Th-232~~ Th-230	~~0.02 ± 0.06~~	~~0.05~~		
9. ~~Pu-239,240~~ U-238	1.03 ± 0.17	1.05 ± 0.05	98	NBS Rocky Flats Soil
10. ~~Am-241~~ U-235	0.02 ± 0.06	0.05	40	NBS Rocky Flats Soil
11. Pb-210	420 ± 10	433 ± 61	~~97~~ 97	USEPA Composite Sand Tailings
12. Ra-226	1.53 ± 0.26	1.55 ± 0.15	99	NBS Mancos Shale
13. Po-210	50 ± 6	40 ± 6	125	EPA Dilute Climax Sand Tailings
14. Po-210	43 ± 5	40 ± 6	108	EPA Dilute Climax Sand Tailings
15. U-234	0.92 ± 0.17	1.06 ± 0.04	87	NBS Rocky Flats Soil
* No solid Gross α/β Standard available				
16. U-238	230 ± 9	253 ± 43	91	EPA Dilute Pitchblend
17. U-235	6.6 ± 1.8	12 ± 2	55	EPA Dilute Pitchblend
18. U-234	233 ± 10	253 ± 43	92	EPA Dilute Pitchblend
19. U-238	0.96 ± 0.20	1.05 ± 0.05	91	NBS Rocky Flats Soil
20. U-235	0.07 ± 0.10	0.05	140	NBS Rocky Flats Soil
21. U-234	1.03 ± 0.21	1.06 ± 0.04	97	NBS Rocky Flats Soil
22. Th-230	351 ± 7	311 ± 44	113	USEPA Composite Sand Tailings

Document Control No. 54-5720-6-001b

23. γ Spec No Standard available

F 7029 Rev.

QC Report No. 54

Calibration Verification

Lab Name: Accu-Labs Research, Inc.

Date 7/14/86

SAS No. 2015 F

Case No. 5720

Units pC/L

Analysis	Analyzed Value ± uncertainty	True Value ± uncertainty	% Recovery	Source
1. Gross Alpha	2 ± 2	3 ± 5	67	EPA Xcheck 1/24/86
2. Gross Beta	6 ± 2	7 ± 5	86	EPA xcheck 1/24/86
3. Ra-226	3990 ± 260	4387 ± 160	91	EPA Ra-226 solution #2151-2-60
4. Ra-228	5,300 ± 600	4,800 ~~±~~ ± 400	110	NBS. Ra-228 Solution Std.
5. ~~H-3~~ Gross α	2 ± 2	3 ± 5	67	EPA Xcheck 1/86
6. ~~Sr-90~~ Gross β	5 ± 3	7 ± 5	71	EPA Xcheck 1/86
7. U-238+235+234	~~12.4 ± 2.6~~ 3	12 ± 10	100	EPA X-check 2/1985
8. ~~Th-232~~ Th-230	7,500 ± 450	~~6690 ± 45~~ 6900 ± 120	109	EPA Th-230 solution
9. Pu-239,240				
10. Am-241				
11. Pb-210	4000 ± 800	4280 ± 90	93	Amersham RBZ24-58/40/59
12. Ra-228	4800 ± 500	4800 ± 400	100	NBS Ra-228 Solution Std
13. U-238,235,234	10.1 ± 2.6	12 ± 10	83	EPA X-check 2/1985
14. Ra-226	4220 ± 240	4387 ± 160	96	EPA Ra-226 solution #2151-2-60
15. Po-210	4400 ± 800	4280 ± 90	103	Amersham RBZ24-58/40/59
16. Ra-226	4390 ± 240	4387 ± 160	100	EPA Ra-226 solution #2151-2-60
17. Ra-226	4610 ± 230	4387 ± 160	105	EPA Ra-226 solution #2151-2-60
18. Th-230	6690 ± 450	6900 ± 120	97	EPA Th-230 solution

Document Control No. 54-5720-6-0016

F 7030 Rev.

QC Report No. 54

Duplicate Sample Results

Lab Name: Accu-Labs Research, Inc.

Date 7/14/86

SAS No. 2015 F

Case No. 5720

EPA Sample No. MFD 126

Lab Sample ID No. 54-5720-9-3

Units pCi/L

Matrix Water

Analysis	Sample Result ± Counting Uncertainty	Duplicate Sample Result ± Counting Uncertainty
1. Gross Alpha		
2. Gross Beta		
3. Ra-226		
4. Ra-228		
5. H-3		
6. Sr-90		
7. U-238	1.0 ± 0.4	1.0 ± 0.4
8. Th-232		
9. Pu-239,240		
10. Am-241		
11. U-235	0.06 ± 0.14	0.01 ± 0.12
12. U-234	0.97 ± 0.51	1.1 ± 0.5
13.		
14.		
15.		

Document Control No. 54-5720-6-0017

File
EPA ID# OKD007221831
Site Name: Fansteel Metals
Case# 5720/2015F(ACl-6)
OK3549

U.S. ENVIRONMENTAL PROTECTION AGENCY CLP Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22[illegible] Phone: 703/557-2490 – FTS/557-2490

HIGH HAZARD TRAFFIC REPORT

Sample Number: F 5243

FIELD SAMPLE RECORD

① **Case Number:** 5720

Sample Site Name/Code: [illegible]

OC 3549

② **Field Sample Description:**
- __ Drum
- X Aqueous Liquid
- __ Sludge
- __ Solid
- __ Oil
- __ Other

③ **Ship To:** Accu Labs
11485 W. 6th Avenue
Wheat Bridge CO 80033
Attn: Cathy Kairns

④ **Sampling Office:** 06

Sampling Personnel: [illegible]
(name)
214 / 742-[illegible]
(phone)

Sampling Date: 4/10/86
1620 (begin) 1630 (end)

⑤ **Known or Suspected Hazards:**
Radiation
Hydrofluoric Acid

⑥ **Sample Location:**
Station #21
French Drain

SAS # 2015-F21

⑦ **Preparations Requested:**
(check below)

Sample Volume: 32[illegible]
- __ Organics
- __ Volatile Organics
- __ Base/Neutral, Acid
- __ TCDD
- __ Pesticides, PCB
- __ Inorganics
- X Total Metals + Cyanide
- X Total Mercury
- X Strong Acid Anions
- X Radioactivity
- X Ammonia + Fluoride

⑧ **Shipping Information:**
Federal Express
(name of carrier)
4/11/86
(date shipped)
369728332
[illegible] 591 031 772
(airbill number)

⑨ **Special Handling Instructions:**
Rev. SMO Guidelines

Lot # 65190102

Client File Copy

U.S. ENVIRONMENTAL PROTECTION AGENCY CLP Sample Management Office
P.O. Box 818—Alexandria, Virginia 223[illegible] Phone: 703/557-2490—FTS/557-2490

HIGH HAZARD TRAFFIC REPORT

Sample Number: F 5244

FIELD SAMPLE RECORD

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

11

② **Field Sample Description:**

- __ Drum
- __ Aqueous Liquid
- __ Sludge
- ✓ Solid
- __ Oil
- __ Other

③ **Ship To:** Accu Labs
1149 SW. 49th Avenue
Wheat Ridge CO. 80033

Attn: Cathy Kairns

④ **Sampling Office:** Region 06

Sampling Personnel: Gene McDonald
(name)

214/742-6601
(phone)

Sampling Date: 4/9/86

1628 (begin) 1631 (end)

⑤ **Known or Suspected Hazards:**

Radiation
0.1 mR/hr on surface
[illegible]

⑥ **Sample Location:**

Station #26
Midpoint between
Service Bldg. and
South Fence.

SAS# 2015-F

⑦ **Preparations Requested:**
(check below)

Sample Volume: [illegible]

- __ Organics
- __ Volatile Organics
- __ Base/Neutral, Acid, TCDD
- __ Pesticides, PCB
- __ Inorganics
- __ Total Metals
- __ Total Mercury
- __ Strong Acid Anions
- X [illegible]

⑧ **Shipping Information:**

Federal Express
(name of carrier)

4/10/86
(date shipped)

891031586
(airbill number)

⑩ **Preparation Lab:**

Rec'd By

Date Rec'd

Sample Condition on Receipt:
(e.g., broken, leakage, Chain-of-Custody, etc.)

⑨ **Special Handling Instructions:**

Per SMO Guidelines

Prep Lab File Copy

Lot #s 65190112

U.S. ENVIRONMENTAL PROTECTION AGENCY CLP Sample Management Office
P.O. Box 818—Alexandria, Virginia 223[illegible] Phone: 703/557-2490—FTS/557-2490

HIGH HAZARD TRAFFIC REPORT

Sample Number: F 5245

FIELD SAMPLE RECORD

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② **Field Sample Description:**
- __ Drum
- __ Aqueous Liquid
- __ Sludge
- X Solid
- __ Oil
- __ Other

③ **Ship To:** Accu-Labs
1145 W 48th Avenue
Wheat Ridge, CO. 80033

Attn: Cathy Kairns

④ **Sampling Office:** Region 06

Sampling Personnel: Gene McDonald
(name)

214/742-6601
(phone)

Sampling Date: 4/9/86

1650 (begin) 1653 (end)

⑤ **Known or Suspected Hazards:** Radiation
0.4 mR/hr on surface
w/o [illegible]

⑥ **Sample Location:** Station #27
N. end of Chem C
Bldg., Drainage Pathway
N. from tailing chute

SAS# 2015-F

⑦ **Preparations Requested:**
(check below)

Sample Volume: 8oz

- __ Organics
- __ Volatile Organics
- __ Base/Neutral, Acid, TCDD
- __ Pesticides, PCB
- __ Inorganics
- __ Total Metals
- __ Total Mercury
- __ Strong Acid Anions
- X Radioactive

⑧ **Shipping Information:**

Federal Express
(name of carrier)

4/10/86
(date shipped)

[illegible]
(airbill number)

⑩ **Preparation Lab:**

Rec'd By _____

Date Rec'd _____

Sample Condition on Receipt:
(e.g., broken, leakage, Chain-of-Custody, etc.)

⑨ **Special Handling Instructions:**
Per SMO Guidelines

Lot #s 65190112

Prep Lab File Copy

U.S. ENVIRONMENTAL PROTECTION AGENCY CLP Sample Management Office
P.O. Box 818—Alexandria, Virginia 223[illegible] Phone: 703/557-2490—FTS/557-2490

HIGH HAZARD TRAFFIC REPORT

Sample Number: F 5246

FIELD SAMPLE RECORD

1 Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

2 Field Sample Description:
- __ Drum
- __ Aqueous Liquid
- __ Sludge
- X Solid
- __ Oil
- __ Other

3 Ship To: Accu-Labs
11455 W 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns

4 Sampling Office: Region 06

Sampling Personnel: Gene McDonald
(name)
214/749-6601
(phone)

Sampling Date: 4/1/96
1726 1740
(begin) (end)

5 Known or Suspected Hazards: Radiation
.06 mR/hr on surface
w/o lid

6 Sample Location: Station #28
SE corner of
Landfill

7 Preparations Requested:
(check below)

Sample Volume: 8oz

- __ Organics
- __ Volatile Organics
- __ Base/Neutral, Acid, TCDD
- __ Pesticides, PCB
- __ Inorganics
- __ Total Metals
- __ Total Mercury
- __ Strong Acid Anions
- X Radioactive

8 Shipping Information: Federal Express
(name of carrier)
4/10/96
(date shipped)
8910315 10
(airbill number)

10 Preparation Lab:
Rec'd By
Date Rec'd

Sample Condition on Receipt:
(e.g., broken, leakage, Chain-of-Custody, etc.)

9 Special Handling Instructions: Per SMO Guidelines

Lot #'s 65190112

Prep Lab File Copy

U.S. ENVIRONMENTAL PROTECTION AGENCY CLP Sample Management Office
P.O. Box 818—Alexandria, Virginia 223[illegible] Phone: 703/557-2490—FTS/557-2490

HIGH HAZARD TRAFFIC REPORT

Sample Number F 5247

FIELD SAMPLE RECORD

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

DK 3549

② **Field Sample Description:**

__ Drum
__ Aqueous Liquid
__ Sludge
X Solid
__ Oil
__ Other

③ **Ship To:** Accu-Labs
11485 W 48th Avenue
Wheat Ridge CO. 80033

Attn: Cathy Kairns

④ **Sampling Office:** Region 06

Sampling Personnel: Gene McDonald
(name)

214/742-8601
(phone)

Sampling Date: 4/9/86

1733 (begin) 1738 (end)

⑤ **Known or Suspected Hazards:** Radiation
0.1 mR/hr on surface [illegible] lid

⑥ **Sample Location:** Station #29
SW corner of
Landfill

⑦ **Preparations Requested:**
(check below)

Sample Volume: 8oz

__ Organics
__ Volatile Organics
__ Base/Neutral, Acid, TCDD
__ Pesticides, PCB

__ Inorganics
__ Total Metals
__ Total Mercury
__ Strong Acid Anions
X Radioactive

⑧ **Shipping Information:**

Federal Express
(name of carrier)

4/10/86
(date shipped)

891 031 584
(airbill number)

⑩ **Preparation Lab:**

Rec'd By

Date Rec'd

Sample Condition on Receipt:
(e.g., broken, leakage, Chain-of-Custody, etc.)

⑨ **Special Handling Instructions:**

Per SMO Guidelines

Lot#'s 65190112

Prep Lab File Copy

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number
FC 136

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 2549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
X Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-6601
(Phone)

Sampling Date: 4/9/86
1625 1635
(Begin) (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)	~~2~~	~~8 oz~~
Soil/Sediment (Extractable)	5	40 oz
Soil/Sediment (VOA)	2	8 oz
Other		

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/10/86
Date Shipped:

891 031 573
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water X Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

~~Station 034-09A~~
~~MW08US~~
Station 09A
Downstream

⑩ **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

Matchos Inorganics ~~125US~~ MFD125
Lot #'s ~~65190120US~~
65190102

REGIONAL OFFICE FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number
FC 137

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
___ Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA 15275
Attn: Dave Danner

Transfer Ship To: →

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-6601
(Phone)

Sampling Date: 4/9/86
1726 1740
(Begin) (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/10/86
Date Shipped:

8910 31573
Airbill Number:

⑧ **Sample Description**

X Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station ~~04~~ EF 28
~~MW 19~~ S. Corner
Landfill

⑩ **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 126
Lot #'s

REGIONAL OFFICE FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number
FC 138

① Case Number: 5720

Sample Site Name/Code: Faustel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
___ Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-8601
(Phone)

Sampling Date: 4-10-86
1257 1325
(Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)	2	80ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

4/10/86
Date Shipped:

991031573
Airbill Number:

⑧ Sample Description

___ Surface Water
X Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify) _____

⑨ Sample Location

Station 05
MW 05

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD127
Lot#'s 2533-7216

REGIONAL OFFICE FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number: FC 134

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
___ Soil/Sediment

④ Ship To:
NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsberg, PA 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4-10-86
1000 - 1010
(Begin) ~~1000 WD~~ (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)	2	80 ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

4-10-86
Date Shipped:

891031573
Airbill Number:

⑧ Sample Description

___ Surface Water
X Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify) _____

⑨ Sample Location

Station 01
Monitor Well W15

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Mataches Inorganic MFD 12~~8~~3 WD
Lot #'s

REGIONAL OFFICE FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number
FC 135

① **Case Number:** 5720

Sample Site Name/Code: Faustel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
___ Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-6601
(Phone)

Sampling Date: 4/10/86
1020 1105
(Begin) (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	4	2000ml
Water (VOA)	2	80ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ **Shipping Information**

Federal Express
Name of Carrier

4-10-86
Date Shipped:

891031573
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
X Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 02
Monitor Well W07

⑩ **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 124
Lot #'s 6056112 1lt amber
2533 7752

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P.O. Box 818, Alexandria, Virginia 22313—703/557-2490 • FTS/557-2490

ORGANICS TRAFFIC REPORT

Sample Number
FC 142

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
___ Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsburg, PA. 15275
Attn: Dave Dunner

Transfer
Ship To:

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-6601
(Phone)

Sampling Date: 4/9/86
1610 (Begin) 1625 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	2	2 liters
Water (VOA)	2	80ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other (Water Rest.)	2	2 liters

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/10/86
Date Shipped:

891031573
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 09
Downstream Webber Falls 100yds S. of Bridge

⑩ **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 131
Lot #'s 1liter - H605602

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ORGANICS TRAFFIC REPORT

Sample Number: FC 145

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 2549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
___ Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsburg, Pa. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4/9/86
1615 (Begin) 1630 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	2	2 liters
Water (VOA)	2	80ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Water Other (Rest.)	2	2 liters

⑦ Shipping Information

Federal Express
Name of Carrier

4/10/86
Date Shipped:

891031573
Airbill Number:

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ✓ Other (specify) Rinsate

⑨ Sample Location

Station 24
Rinsate

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 144
Lot #'s 1 liter amber - H6056102
40ml - 25337[illegible]2

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ORGANICS TRAFFIC REPORT

Sample Number: FC 154

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

Ok 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

___ Water
X Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsberg, PA. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4/10/86
1702 (Begin) 1708 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	~~1~~ WMS	~~8 oz~~
Water (VOA)		
Soil/Sediment (Extractable)	1	8 oz
Soil/Sediment (VOA)	2	16 oz
Pesticide Other	1	8 oz

⑦ Shipping Information

Federal Express
Name of Carrier

4/11/86
Date Shipped:

891031783
Airbill Number:

⑧ Sample Description

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
✓ Solids
___ Other (specify) ___

⑨ Sample Location

Station 18
Tank Farm

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 141
Lot #'s 65190112

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ORGANICS TRAFFIC REPORT

Sample Number: FC 156

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

___ Water
X Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4-10-86
1750 (Begin) 18:15 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)	4	
Soil/Sediment (Extractable)	2	16 oz
Soil/Sediment (VOA)	4	32 oz
Other		
soil pesticides	2	16 oz

⑦ Shipping Information

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891031783
Airbill Number:

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water X Solids
___ Leachate ___ Other (specify) ___

⑨ Sample Location

~~Statation~~ QA/QC
Station 20
Drainage Path - Base

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD143
Lot#s 65190102 + 65190112

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ORGANICS TRAFFIC REPORT

Sample Number: FC 153

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

___ Water
X Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsburg, PA 15275
Attn: Dave Dannet

Transfer Ship To:

⑤ **Regional Office:** 06

Sampling Personnel: Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4/10/86
1653 (Begin) 1658 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	DMS 1	8 OZ
Water (VOA)	DMS 2	16 OZ
Soil/Sediment (Extractable)	1	8 OZ
Soil/Sediment (VOA)	2	8 OZ
Pesticide Other	1	8 OZ

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/11/86
Date Shipped:

891 031 783
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water ✓ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 17
~~Between~~ L 3 + Acid Residue Storage

⑩ **Special Handling Instructions:** (e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 140
Lot #'s 15190112

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ORGANICS TRAFFIC REPORT

Sample Number: FC 151

① **Case Number:** 5770

Sample Site Name/Code: Fansteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

___ Water
X Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsberg, PA 15275
Attn: Dave Danner

Transfer Ship To:

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald (Name)
214/742-6601 (Phone)

Sampling Date: 4/10/86
1630 (Begin) 1637 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)	2	16oz
Soil/Sediment (VOA)	2	8oz
Other Fluoride Ammonia	2	~~8~~ 16oz

⑦ **Shipping Information**

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891031 783
Airbill Number:

⑧ **Sample Description**

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other (specify) _____

⑨ **Sample Location**

Station #15
Outfall #3

⑩ **Special Handling Instructions:** (e.g., safety precautions, hazardous nature)

Matches Inorganics MFD138
Lot #'s 65190112

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ORGANICS TRAFFIC REPORT

Sample Number
FC 150

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
X Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel: Gene McDonald (Name)

214/742-6601 (Phone)

Sampling Date: 4/10/86

1140 (Begin) 1645 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)	2	16 oz
Soil/Sediment (VOA)	2	8 oz
Other Fluoride Ammonia	2	16 oz

⑦ Shipping Information

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891 031 783
Airbill Number:

⑧ Sample Description

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other (specify) _____

⑨ Sample Location

Station 14
Outfall #2

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD137
Lot #'s 6519012

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ORGANICS TRAFFIC REPORT

Sample Number
FC 148

① **Case Number:** 5720

Sample Site Name/Code: Faustel/Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
X Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsburg, PA. 15275
Attn: Dave Donner

Transfer
Ship To:

⑤ **Regional Office:** 06

Sampling Personnel:
Gene McDonald
(Name)
214/742-6601
(Phone)

Sampling Date: 4/9/86
1630 1645
(Begin) (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)	2	16 oz
Soil/Sediment (VOA)	2	8 oz.
Other Fluoride Ammonia	2	16 oz.

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/11/86
Date Shipped:

891 031 783
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water X Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 12
Background Soil 3-6"

⑩ **Special Handling Instructions:**
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 134
Lot #s 65190112
65190102

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ORGANICS TRAFFIC REPORT

Sample Number: FC 147

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
X Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Donner

Transfer
Ship To:

⑤ Regional Office: 06

Sampling Personnel:
Gene McDonald
(Name)
314/742-6601
(Phone)

Sampling Date: 4/9/86
1630 (Begin) 1645 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)	2	16 oz
Soil/Sediment (VOA)	2	8 oz
Other Fluoride Ammonia	2	16 oz

⑦ Shipping Information

Federal Express
Name of Carrier

4/11/86
Date Shipped:

891 031 783
Airbill Number:

⑧ Sample Description

___ Surface Water ___ Mixed Media
___ Ground Water X Solids
___ Leachate ___ Other (specify) _____

⑨ Sample Location

Station 11
Background Soil 0-3"

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 133
Lot #'s 65190102

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ORGANICS TRAFFIC REPORT

Sample Number: FC 144

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
___ Soil/Sediment

④ Ship To: NUS Corporation (NUS) Park West Two Cliff Mine Road Pittsberg, PA. 15275

Attn: Dave Danner

Transfer

Ship To:

⑤ Regional Office: 06

Sampling Personnel: Gene McDonald (Name)

214/742-6601 (Phone)

Sampling Date: 4-10-86

16:50 (Begin) 17:25 (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)	4	2000ml
Water (VOA)	2	80ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891031783
Airbill Number:

⑧ Sample Description

✓ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify) ___

⑨ Sample Location

Station 13A
Outfall #1 - water

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD135
Lot #'s 6056112 - liter amber
25337252 VOA

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ORGANICS TRAFFIC REPORT

Sample Number: FC 143

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

X Water
___ Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA 15275
Attn: Dave Danner

Transfer Ship To:

⑤ Regional Office: 06

Sampling Personnel: Gene McDonald (Name)

214/767-6601 (Phone)

Sampling Date: 4/11/86

1105 (Begin) 11:11 (End)

⑥ For each sample collected, specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

4/11/86
Date Shipped:

891 031 783
Airbill Number:

⑧ Sample Description

X Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ Sample Location

Station 10
Upstream Webber Falls

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 132
Lot #s HG0 56112
HG0 58702
253372-12

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ORGANICS TRAFFIC REPORT

Sample Number: FC 146

① **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
___ Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Cliff Mine Rd.
Pittsburg, PA. 15275
Attn: Dave Dunner
[redacted]

Transfer Ship To:

⑤ **Regional Office:** 06

Sampling Personnel: Gene McDonald (Name)

214/742-6601 (Phone)

Sampling Date: 4-11-86 (Begin) 12:30 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	2	2000 ml
Water (VOA)	2	80 ml
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other		
water pesticides	2	2000 ml

⑦ **Shipping Information**

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891031783
Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 25
Rinsate

⑩ **Special Handling Instructions:** (e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 145
Lot #'s H605611 2 one liter Amber
#25337252 VOA

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ORGANICS TRAFFIC REPORT

Sample Number: FC 157

① **Case Number:** 5720

Sample Site Name/Code: Eastfeel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

___ Water
X Soil/Sediment

④ **Ship To:** NUS Corporation
Park West Two
Cliff Mine Road
Pittsburg, PA 15275
Attn: Dave Danner

Transfer
Ship To:

⑤ **Regional Office:** 06

Sampling Personnel: Gene McDonald (Name)

214 402-6601 (Phone)

Sampling Date: 4/11/86

1112 (Begin) 1118 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	~~1~~ 2	~~8 oz~~
Water (VOA)		
Soil/Sediment (Extractable)	1	8 oz
Soil/Sediment (VOA)	2	~~8 oz~~ 16 oz.
Other Pesticide	1	8 oz

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/11/86
Date Shipped:

897 031 783
Airbill Number:

⑧ **Sample Description**

___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other (specify) _____

⑨ **Sample Location**

Station 10A
Upstream Background

⑩ **Special Handling Instructions:** (e.g., safety precautions, hazardous nature)

Matches Inorganics # MFD 147
Lot #s 65190102

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ORGANICS TRAFFIC REPORT

Sample Number: FC 152

① Case Number: 5720

Sample Site Name/Code: Fansteel Metals

OK 3549

② SAMPLE CONCENTRATION (Check One)

X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX (Check One)

___ Water
X Soil/Sediment

④ Ship To: NUS Corporation (NUS)
Park West Two
Clift Mine Road
Pittsburg, PA. 15275
Attn: Doine Donnek
[redacted]

Transfer Ship To:

⑤ Regional Office: 06

Sampling Personnel: Gene McDonald (Name)

214/702-6601 (Phone)

Sampling Date: (Begin) (End)

⑥ For each sample collected specify number of containers used and mark volume level on each bottle.

	Number of Containers	Approximate Total Volume
Water (Extractable)		
Water (VOA)		
Soil/Sediment (Extractable)	2	16 oz
Soil/Sediment (VOA)	2	16 oz
Other		

⑦ Shipping Information

Federal Express
Name of Carrier

4-11-86
Date Shipped:

891031783
Airbill Number:

⑧ Sample Description

X Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other (specify) _____

⑨ Sample Location

Station 16
Pond 10

⑩ Special Handling Instructions:
(e.g., safety precautions, hazardous nature)

Matches Inorganics MFD 139
Lot #s 65190102 + 65190112 8 oz

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ORGANICS TRAFFIC REPORT

Sample Number: FC 140

① **Case Number:** 5720

Sample Site Name/Code: Famsteel Metals

OK 3549

② **SAMPLE CONCENTRATION** (Check One)

X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)

X Water
___ Soil/Sediment

④ **Ship To:** NUS Corporation (NUS)
Park West Two
Cliff Mine Road
Pittsburg, PA. 15275
Attn: Dave Donner

Transfer Ship To:

⑤ **Regional Office:** 06

Sampling Personnel: Gene McDonald (Name)

214/742-6601 (Phone)

Sampling Date: 4/10/86

1050 (Begin) — 1320 (End)

⑥ **For each sample collected specify number of containers used and mark volume level on each bottle.**

	Number of Containers	Approximate Total Volume
Water (Extractable)	4	4 Liter
Water (VOA)	6	240 ML
Soil/Sediment (Extractable)		
Soil/Sediment (VOA)		
Other Pesticides	4	4 Liters

⑦ **Shipping Information**

Federal Express
Name of Carrier

4/11/86
Date Shipped:

Airbill Number:

⑧ **Sample Description**

___ Surface Water ___ Mixed Media
___ Ground Water ___ Solids
___ Leachate ___ Other (specify) _____

⑨ **Sample Location**

Station 07
MW 18
extra Volume QA/QC

⑩ **Special Handling Instructions:** (e.g., safety precautions, hazardous nature)

Matches Inorganics MFQ 129
Lot #'s

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P.O. Box 818, Alexandria, VA 223[illegible] 703/557-2490 · FTS/557-2490

INORGANICS TRAFFIC REPORT

Sample Number MFD 145

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
NK 3549

(2) SAMPLE CONCENTRATION (Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX (Check One)
X Water
___ Soil/Sediment

(4) Ship To: Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer Ship To:

(5) Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4-11-86
(Begin) ___ (End) 12:30

(6) Shipping Information:
Name Of Carrier: Federal Express
Date Shipped: 4-11-86
Airbill Number: 891 031 772

(7) Sample Description: (Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
X Other Rinsate (specify)
MATCHES ORGANIC SAMPLE NO. FC 14

(8) Mark Volume Level On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot# 46215071 Scont plastic
33256101 liter "

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P.O. Box 818, Alexandria, VA 223[illegible]/703/557-2490 · FTS/557-2490

INORGANICS TRAFFIC REPORT

Sample Number **MFD 146**

(1) **Case Number:** 5720

Sample Site Name/Code: Fausteel Metals

OK 3549

(2) **SAMPLE CONCENTRATION** (Check One)

X Low Concentration

___ Medium Concentration

(3) **SAMPLE MATRIX** (Check One)

X Water

___ Soil/Sediment

(4) **Ship To:** Accutabs 11485 W. 48th Avenue Wheat Ridge CO. 80033

Attn: Cathy Karras

Transfer Ship To:

(5) **Sampling Office:** 06

Sampling Personnel

(Name) Gene McDonald

(Phone) 214/742-6601

Sampling Date 4/10/86

(Begin) 1020 (End) 1105

(6) **Shipping Information:**

Name Of Carrier Federal Express

Date Shipped 4/11/86

Airbill Number 891 031 772

(7) **Sample Description:** (Check One) Station 02

___ Surface Water

X Ground Water MW07

___ Leachate

___ Mixed Media

___ Solids

___ Other ___ (specify)

MATCHES ORGANIC SAMPLE NO. FC135

(8) **Mark Volume Level On Sample Bottle**

Check Analysis required

___ Total Metals

___ Cyanide

X Radioactivity

Lot # K605 8042

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 147

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

(4) Ship To:
Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kamm
Transfer
Ship To:

(5) Sampling Office: DG
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214/742-6601
Sampling Date 4/11/86
(Begin) 1112 (End) 1118

(6) Shipping Information:
Name Of Carrier
Federal Express
Date Shipped: 4/11/86
Airbill Number: 891 031 772

(7) Sample Description:
(Check One) Station 10A
___ Surface Water
___ Ground Water Upstream BKG.
___ Leachate
___ Mixed Media
X Solids
___ Other (specify)
MATCHES ORGANIC SAMPLE NO. FC 157

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
X Total Metals 65190102
X Cyanide ~~4215021~~
Lot #: ~~K605842~~
~~33256-106~~

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INORGANICS TRAFFIC REPORT

Sample Number MFD 152

(1) **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals OK 3549

(2) **SAMPLE CONCENTRATION** (Check One)

✓ Low Concentration

___ Medium Concentration

(3) **SAMPLE MATRIX** (Check One)

✓ Water

___ Soil/Sediment

(4) **Ship To:** Accu labs 11485 W 48th Ave Wheat Ridge Co 80033

Attn: Cathy Kairns

Transfer Ship To:

(5) **Sampling Office:** VL

Sampling Personnel:

(Name) Gene McDonald

(Phone) (214) 742 6601

Sampling Date: 4-10-86

(Begin) 1050 (End) 1320

(6) **Shipping Information:**

Name Of Carrier: Federal Express

Date Shipped: 4-11-86

Airbill Number: 891031772

(7) **Sample Description:** (Check One)

___ Surface Water

✓ Ground Water

___ Leachate

___ Mixed Media

___ Solids

___ Other _____ (specify)

Station #7

MATCHES ORGANIC SAMPLE NO. _____

(8) **Mark Volume Level On Sample Bottle**

Check Analysis required

___ Total Metals

___ Cyanide

X Radionuclides

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 124

① **Case Number:** 5720
Sample Site Name/Code:
Fansteel Metals
OK 23549

② **SAMPLE CONCENTRATION** (Check One)
X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)
X Water
___ Soil/Sediment

④ **Ship To:** Geco-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kaiser
Transfer Ship To:

⑤ **Sampling Office:** 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/10/86
(Begin) 1020 (End) 1105

⑥ **Shipping Information:**
Name Of Carrier: Federal Express
Date Shipped: 4-10-86
Airbill Number: 891031584

⑦ **Sample Description:** (Check One)
___ Surface Water
X Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (specify)
Sta. 02 Monitor Well W07
MATCHES ORGANIC SAMPLE NO. FC135

⑧ **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide
Lot #

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 125

① Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

② SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX
(Check One)
X WD Water
X Soil/Sediment

④ Ship To:
Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Koins
Transfer
Ship To:

⑤ Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214/743-6601
Sampling Date 4-9-86
(Begin) 8:25 (End) 16:35

⑥ Shipping Information:
Name Of Carrier:
Federal Express
Date Shipped: 4/10/86
Airbill Number: 891031584

⑦ Sample Description:
(Check One)
___ Surface Water
X WD Ground Water ~~Sta. 03~~ ~~MW 08~~
___ Leachate
___ Mixed Media Sta. 04 09A
X Solids Downstream
___ Other _____
(specify)
MATCHES ORGANIC SAMPLE NO. FC136

⑧ Mark Volume Level
On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot # 65190102

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INORGANICS TRAFFIC REPORT

Sample Number: MFD 126

(1) Case Number: 5720
Sample Site Name/Code: Fansteel Metals

(2) SAMPLE CONCENTRATION (Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX (Check One)
X Water
___ Soil/Sediment

(4) Ship To: Accu-Labs
11485 W. 48th Ave.
Wheat Ridge CO. 80033
Attn: Cathy Kairns

Transfer Ship To:

(5) Sampling Office: Co
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/9/86
(Begin) 1726 (End) 1740

(6) Shipping Information:
Name Of Carrier: Federal Express
Date Shipped: 4/10/86
Airbill Number: 891031584

(7) Sample Description: (Check One)
X Surface Water
X Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (specify)

Station 88
~~MW 19~~ El
S.E corner
Landfill

MATCHES ORGANIC SAMPLE NO. EC 137

(8) Mark Volume Level On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide

Lot # 500ml 43215071
1 liter plastic 33256101

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 129

① **Case Number:** 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

② **SAMPLE CONCENTRATION**
(Check One)
X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX**
(Check One)
X Water
___ Soil/Sediment

④ **Ship To:** Accu-Labs
11475 W. 48th Ave
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer Ship To:

⑤ **Sampling Office:** 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/10/86
(Begin) 1050 (End) 1320

⑥ **Shipping Information:**
Name Of Carrier
Federal Express
Date Shipped: 4/11/86
Airbill Number: 991-631-772

⑦ **Sample Description:**
(Check One)
___ Surface Water
X Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other _____
(specify)
MATCHES ORGANIC SAMPLE NO. FC 140

Sta. 07
MW-18

⑧ **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide

Lot # 4621507
QA/QC

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INORGANICS TRAFFIC REPORT

Sample Number: MFD 131

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
X Water
___ Soil/Sediment

(4) Ship To: Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer
Ship To:

(5) Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/9/86
(Begin) 1610 (End) 1625

(6) Shipping Information:
Name Of Carrier: Federal Express
Date Shipped: 4/10/86
Airbill Number: 89 1031 584

(7) Sample Description:
(Check One)
X Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
___ Other ___ (specify)
Sta. 09 Downsteam Webber Falls
MATCHES ORGANIC SAMPLE NO. FC-142

(8) Mark Volume Level On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot # ~~[illegible]~~ 3325601 (1 liter Plastic)

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 132

(1) **Case Number:** 5-720
Sample Site Name/Code:
Forsteel Metals
OK 3549

(2) **SAMPLE CONCENTRATION**
(Check One)
X Low Concentration
___ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
X Water
___ Soil/Sediment

(4) **Ship To:** Anco-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer Ship To:

(5) **Sampling Office:** 6
Sampling Personnel
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/1/86
(Begin) 1105 (End) 1111

(6) **Shipping Information:**
Name Of Carrier
Federal Express
Date Shipped: 4/1/86
Airbill Number: 891 031 772

(7) **Sample Description:**
(Check One)
X Surface Water Station 10
___ Ground Water Dupstream
___ Leachate Webber Falls
___ Mixed Media
___ Solids
___ Other ___
(specify)
MATCHES ORGANIC SAMPLE NO. FC 145

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide
4-21 SO 71
Lot # K6058042
3325 6101

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 133

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

(4) Ship To: Accu Labs
11485 W. 48th Avenue
Wheat Ridge CO 80033
Attn: Cathy Kairns
Transfer
Ship To:

(5) Sampling Office: [illegible]
Sampling Personnel
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/9/86
(Begin) 1650 (End) 1645

(6) Shipping Information:
Name Of Carrier: Federal Express
Date Shipped: 4/11/86
Airbill Number: 841 031 772

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___
(specify)
Sta. 11
Background
Soil 0-3"
MATCHES ORGANIC SAMPLE NO. FC147

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot # 65190102

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 134

(1) **Case Number:** 5720
Sample Site Name/Code:
Fansteel Metal
OK 35-49

(2) **SAMPLE CONCENTRATION**
(Check One)
X Low Concentration
___ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
___ Water
X Soil/Sediment

(4) **Ship To:** Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO 80033
Attn: Cathy Kairns
Transfer Ship To:

(5) **Sampling Office:** C
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/9/86
(Begin) 1650 (End) 1645

(6) **Shipping Information:**
Name Of Carrier:
Federal Express
Date Shipped: 4/11/86
Airbill Number: 891031772

(7) **Sample Description:**
(Check One) Sta. 12 Background Soil 3-6"
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___ (specify)
MATCHES ORGANIC SAMPLE NO. FC 148

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide

Lot# 65190112
65190102

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 135

(1) **Case Number:** 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) **SAMPLE CONCENTRATION**
(Check One)
X Low Concentration
___ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
X Water
___ Soil/Sediment

(4) **Ship To:** Accu-Labs
11485 W. 48th Ave
Wheat Ridge CO 80033
Attn: Cathy Kairns
Transfer Ship To:

(5) **Sampling Office:** 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/10/76
(Begin) 1650 (End) 1705

(6) **Shipping Information:**
Name Of Carrier: Federal Express
Date Shipped: 4/11/76
Airbill Number: 891031772

(7) **Sample Description:**
(Check One)
X Surface Water Sta. 13A
___ Ground Water
___ Leachate Outfall #1
___ Mixed Media
___ Solids
___ Other
(specify)
MATCHES ORGANIC SAMPLE NO. ~~UD FC 149~~ FC 144

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide

Lot #K605 8042

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INORGANICS TRAFFIC REPORT

Sample Number **MED 137**

(1) **Case Number:** 5720

Sample Site Name/Code: Fansteel Metals

DK3549

(2) **SAMPLE CONCENTRATION** (Check One)

X Low Concentration

___ Medium Concentration

(3) **SAMPLE MATRIX** (Check One)

___ Water

X Soil/Sediment

(4) **Ship To:** Accu-Labs

11485 W. 48th Avenue

Wheat Ridge CO. 80033

Attn: Cathy Kairns

Transfer Ship To:

(5) **Sampling Office:** Co

Sampling Personnel:

(Name) Gene McDonald

(Phone) 214-742-6601

Sampling Date: 4/10/86

(Begin) 1640 (End) 1645

(6) **Shipping Information:**

Name Of Carrier: Federal Express

Date Shipped: 4-11-86

Airbill Number: 891031772

(7) **Sample Description:** (Check One)

___ Surface Water

___ Ground Water

___ Leachate

___ Mixed Media

X Solids

___ Other ___ (specify)

Station 14 Outfall #2

MATCHES ORGANIC SAMPLE NO. FC 150

(8) **Mark Volume Level On Sample Bottle**

Check Analysis required

X Total Metals

X Cyanide

Lot #65190112

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 138

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

(4) Ship To: Accu Labs
11485 W 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer
Ship To:

(5) Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/10/86
(Begin) 1630 (End) 1637

(6) Shipping Information:
Name Of Carrier: Federal Express
Date Shipped: 4/11/86
Airbill Number: 891 031 772

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___ (specify)
Sta. 15
Outfall #3
MATCHES ORGANIC SAMPLE NO. FC 151

(8) Mark Volume Level On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot # 65190112

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INORGANICS TRAFFIC REPORT

Sample Number: MFD 139

① **Case Number:** 5720

Sample Site Name/Code:
Fansteel Metals
OK 3549

② **SAMPLE CONCENTRATION** (Check One)
X Low Concentration
___ Medium Concentration

③ **SAMPLE MATRIX** (Check One)
___ Water
X Soil/Sediment

④ **Ship To:** Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033

Attn: Patty Kairns

Transfer Ship To:

⑤ **Sampling Office:** 6

Sampling Personnel:

(Name) Gene McDonald

(Phone) 214-742-6601

Sampling Date: 4-10-86

(Begin) 14:23 (End) 16:25

⑥ **Shipping Information:**

Name Of Carrier: Federal Express

Date Shipped: 4-11-86

Airbill Number: 891031772

⑦ **Sample Description:** (Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___ (specify)

Station 16
Pond #10

MATCHES ORGANIC SAMPLE NO. FC152

⑧ **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide

Lot # 65190102 & 65190112

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INORGANICS TRAFFIC REPORT

Sample Number MFD 140

(1) Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

(3) SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

(4) Ship To: Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer
Ship To:

(5) Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/10/86
(Begin) 1653 (End) 1658

(6) Shipping Information:
Name Of Carrier:
Federal Express
Date Shipped: 4/11/86
Airbill Number: 891031772

(7) Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___ (specify)
Station 17
Between L3a
Acid Residue
Storage
MATCHES ORGANIC SAMPLE NO. FC153

(8) Mark Volume Level
On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide

Lot# 65190112

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 141

① Case Number: 5720
Sample Site Name/Code:
Fansteel Metals
OR 2549

② SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

④ Ship To:
AccuLabs
11835 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns

Transfer
Ship To:

⑤ Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 219-742-6601
Sampling Date: 4/10/86
(Begin) 1702 (End) 1708

⑥ Shipping Information:
Name Of Carrier
Federal Express
Date Shipped: 4/11/86
Airbill Number: 891031772

⑦ Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other _____ (specify)
Station 18
Tank Farm
MATCHES ORGANIC SAMPLE NO FC154

⑧ Mark Volume Level
On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot #s 65190112

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INORGANICS TRAFFIC REPORT

Sample Number
MFD 143

① Case Number: 5720
Sample Site Name/Code:
Fernstoel Metals
OK 3549

② SAMPLE CONCENTRATION
(Check One)
X Low Concentration
___ Medium Concentration

③ SAMPLE MATRIX
(Check One)
___ Water
X Soil/Sediment

④ Ship To: Accu-Labs
11485 W. 48th Avenue
Wheat Ridge CO. 80033
Attn: Cathy Kairns
Transfer
Ship To:

⑤ Sampling Office: 6
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4-10-86
(Begin) 17:50 (End) 18:15

⑥ Shipping Information:
Name Of Carrier:
Federal Express
Date Shipped: 4-11-86
Airbill Number: 89103177-2

⑦ Sample Description:
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
X Solids
___ Other ___ (specify)
Station 20 Drainage Path Base
MATCHES ORGANIC SAMPLE NO FC156

⑧ Mark Volume Level On Sample Bottle
Check Analysis required
X Total Metals
X Cyanide
Lot # 65190102 & 65190112

REGIONAL OFFICE FILE COPY

U.S. ENVIRONMENTAL PROTECTION AGENCY HWI Sample Management Office
P.O. Box 818, Alexandria, VA 22[illegible] 703/557-2490 · FTS/557-2490

INORGANICS TRAFFIC REPORT

Sample Number
MFD 144

(1) **Case Number:** 5720
Sample Site Name/Code:
Fansteel Metals
OK 3549

(2) **SAMPLE CONCENTRATION**
(Check One)
X Low Concentration
___ Medium Concentration

(3) **SAMPLE MATRIX**
(Check One)
X Water
___ Soil/Sediment

(4) **Ship To:** Anch-Labs
11485 W. 48th Avenue
Wheat Ridge CO 80033
Attn: Cathy Kainds
Transfer Ship To:

(5) **Sampling Office:** CO
Sampling Personnel:
(Name) Gene McDonald
(Phone) 214-742-6601
Sampling Date: 4/9/86
(Begin) 1625 (End) 1630

(6) **Shipping Information:**
Name Of Carrier: Federal Express
Date Shipped: 4/10/86
Airbill Number: 891031584

(7) **Sample Description:**
(Check One)
___ Surface Water
___ Ground Water
___ Leachate
___ Mixed Media
___ Solids
X Other Rinsate
(specify)
MATCHES ORGANIC SAMPLE NO. FC145

(8) **Mark Volume Level On Sample Bottle**
Check Analysis required
X Total Metals
X Cyanide

Lot# 1 liter plastic 3325601
500ml plastic 4371571

REGIONAL OFFICE FILE COPY

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

INOrganics Water & Soils

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) [signature] Weldon Day, Alice Chriss Jr.

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity	Ammonia	Fluoride	Metals	Cyanide		REMARKS Tag#	In Organic TF#
09	4/9/86	1610-1625		X	Downstream Weber Falls 100 yds South of Bridge	4	X						6-18813, 6-18814, 6-18840, 6-18841	MFD131
09	4/9/86	1610-1625		X	Downstream Weber Falls 100 yds South of Bridge	1		X					6-18815	MFD131
09	4/9/86	1610-1625		X	Downstream Weber Falls 100 yds South of Bridge	1			X				6-18816	MFD131
09	4/9/86	1610-1625		X	Downstream Weber Falls 100 yds South of Bridge	1				X			6-18811	MFD131
09	4/9/86	1610-1635		X	Downstream Weber Falls 100 yds South of Bridge	1					X		6-18812	MFD131
09A	4/9/86	1625-1635		X	Downstream Weber Falls 100 yds South of Bridge	3		X	X	X	X		6-18835, 6-18834, 6-18833	MFD125
24	4/10/86	1615-1630		X	Kinsate	3		X	X	X	X		6-18823, 6-18826, 6-18823	MFD144
28	4/9/86	1726-1740		X	S.E. corner Landfill Pond	4		X	X	X	X		6-18746, 6-18748, 6-18750, 6-18747	MFD126
02	4/10/86	1020-1105		X	MW07	4		X	X	X	X		6-18725, 6-18728, 6-18724, 6-18726	MFD124

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Alice Chriss Jr. [signature]	4/10/86 1700	Federal Express			
Relinquished by: (Signature) [signature]	Date / Time	Received by: (Signature) [signature]	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) [signature]	Date / Time [signature]	Remarks Fed. Express Airbill# 891031584	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

INCL 4

INCL 4

6—6336

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

Organics Water & Soil

CHAIN OF CUSTODY RECORD

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) Weldon Kay, Alex Chrisp Jr., Colin Hall, Ken [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Extractables	Pesticides	VOA				REMARKS Tag #'s	REMARKS Org.T.F.#
W 09	4/9/86	1600-1635		X	Downstream Walker Falls 100 yds South of Bridge	4	X	X					6-18819, 6-18820, 6-18821, 6-18822	FC142
09	4/9/86	1610-1625		X	Downstream Walker Falls 100 yds South of Bridge	2			X				6-18817, 6-18818	FC142
S 09A	4/9/86	1625-1635		X	Downstream Walker Falls 100 yds South of Bridge	3	X	X	X				6-18838, 6-18839, 6-18836	FC136
W 24	4/9/86	1617-1630		X	Rinsate	4	X	X					6-18829, 6-18830, 6-18831, 6-18832	FC145
W 24	4/9/86	1615-1620		X	Rinsate	2			X				6-18827, 6-18828	FC145
28	4/9/86	1726-1740		X	SE Corner Landfill pond	4	X	X					6-18754, 6-18753, 6-18756, 6-18755	FC137
28	4/9/86	1726-1740		X	SE Corner Landfill pond	2			X				6-18752, 6-18751	FC137
01	4/10/86	1000-1010		X	MW 15	2			X				6-18718, 6-18719	FC139
05	4/10/86	1217-1225		X	MW 05	2			X				6-18763, 6-18762	FC138
9A	4/10/86	1625-1635		X	DS Walker Falls 100 yds S. of Bridge	1			X				6-18837	FC136

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Weldon Kay, Alex Chrisp Jr.	4/10/86 1700	Federal Express			
Relinquished by: (Signature) Colin Hall	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Fed. Express Airbill # 891031573	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6337

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) Bill Paul, Ed Fry, Collin Hatt, James A. Trusley

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity						REMARKS
~~02~~ 28	4/9/86	1726-1740		X	SE Corner Landfill Pond	4	X						6-18849, 6-18848, 6-18784, 6-18847 MFD126
~~28~~	4/9/86	1736 1748		X	SE Corner Landfill Sed.	1	X						6-18905 F5246 ~~MFD126~~ EF
26	4/9/86	1620 1631		X	Midpoint Service Bldg. & Fence	1	X						6-18901 ✓ F5244
27	4/9/86	1650 1653		X	Drainage Path Tailing Chute	1	X						6-18903 F5245
29	4/9/86	1733 1738		X	SW corner Landfill	1	X						6-18907 F5247

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Paul, Ed Fry, Collin Hatt, James A. Trusley	4/10/86 1700	Federal Express ~~65190112~~ 891031584			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6338

Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals
SAMPLERS: (Signature) Bernard Lopez, Bill Park, Chris Hall, Don Brown

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Extractables	Extractables	VOAs	Pesticides			REMARKS
02	4/10/86	1020 1105		X	Monitor Well 07	4	X		X				6-18732, 6-18733, 6-18731, 6-18734 FC135
02	4/10/86	1020 1105		X	Monitor Well 07	2		X					6-18729, 6-18730 FC135
13A	4/10/86	1650 1705		X	Outfall #1	4	X		X				6-18919, 6-18920, 6-18921, 6-18922 FC144
13A	4/10/86	1650 1705		X	Outfall #1	2		X					6-18918, 6-18914 FC144
16	4/10/86	1623 1625		X	Pond #10	2	X		X				6-18862, 6-18860 FC152
16	4/10/86	1623 1625		X	Pond #10	2		X					6-18864, 6-18861 FC152
17	4/10/86	1653 1658		X	Between L13 & Acid Store.	2	X		X				6-18875, 6-18874 FC153
17	4/10/86	1653 1658		X	Between L13 Acid Storage	2		X					6-18880, 6-18879 FC153
18	4/10/86	1702 1706		X	W. End Sediment Tank ~~Between L13 & Acid Store~~	2	X		X				6-18870, 6-18868 FC154
18	4/10/86	1702 1706		X	W. End Sediment Tank	2		X					6-18869, 6-18870 FC154
20	4/10/86	1750 1815		X	Drainage path from base pond	4		X					6-18950, 6-18949, 6-18948, 6-18951 FC156
20	4/10/86	1750 1815		X	Drainage path from base pond	2	X						6-18944, 6-18945 FC156
20	4/10/86	1750 1815		X	Drainage path from base pond	2			X				6-18946, 6-18947 FC156

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bernard Lopez, Bill Park, Chris Hall, Don Brown	4/11 1600	Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Air Bill # 891-031-783 Charged to Air bill # 891031761

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6339

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

InOrg.

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) Bernard Cousin, Bill Park, Don Smith, Collins Platt

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity	Fluoride	Ammonia	Metals + Cyanide			REMARKS
02	4/10/86	1020 1105		X	Monitor Well 07 H_2O	4	X						6-18783, 6-18857, 6-18727, 6-18859 MFD 146
16	4/10/86	16:23 16:25		X	Pond 10 soil	3		X	X	X			6-18866, 6-18863, 6-18865 MFD 139
20	4/10/86	17:50 14:15		X	Drainage Path From base Pond soil	3		X	X	X			6-18942, 6-18941, 6-18943 MFD [illegible]
25	4/11/86	12:30		X	Rinsate H_2O	Bag 4		X	X	XX			6-19008, 6-19009, 6-19010, 6-19011 MFD [illegible]
12	4/10/86	1630-1645		X	Background West 3"-6" soil	3		X	X	X			~~6-18863, 6-19~~ 6-18899, 6-18898, 6-18931 MFD 134
15	4/10/86	1630-1637		X	Outfall #3 soil	3		X	X	X			6-18893, 6-18896, 6-18890 MFD 138
11	4/10/86	1630-1645		X	Background West 0-3" soil	3		X	X	X			6-18935, 6-18940, 6-18934 MFD 133

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Don Smith, Collins Platt, Bernard Cousin, Bill Park	4/11/86 1600	Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Air Bill # 891031772	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6340

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549

PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) [illegible] Bernard Cousin

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity	Metals	Cyanide	Fluoride	Ammonia	REMARKS
13A	4/10/86	1650 1705		X	Outfall #1 H_2O	4	X					6-18910, 6-18912, 6-18909, 6-18911 MFD135
13A	4/10/86	1650-1705		X	outfall #1 H_2O	1		X				6-18913 MFD 135
13A	4/10/86	1650-1705		X	outfall #1 H_2O	1			X			6-18914 MFD 135
13A	4/10/86	1650-1705		X	outfall #1 H_2O	1			X			6-18916 MFD 135
17	4/10/86	1653-1658		X	Between L3 + Acid Store	1			X			6-18878 MFD 140
17	4/10/86	1653-1659		X	Between L3 & Acid store	1		X	X			6-18876 MFD 140
17	4/10/86	1653-1658		X	Between L3 & Acid Store	1				X		6-18877 MFD 140
13A	4/10/86	1650-1705		X	outfall #1 H_2O	1				X		6-18915 MFD 135
18	4/10/86	1702-1706		X	W. end Sediment Area	1		X	X			6-18873 MFD 141
18	4/10/86	1702-1706		X	W. end sediment Area	1				X		6-18872 MFD 141
18	4/10/86	1702-1706		X	W. end sediment Area	1				X		6-18867 MFD 141
14	4/10/86	1640 1645		X	Outfall #2	1			X			6-18883 MFD 137
14	4/10/86	1640 1645		X	Outfall #2	1		X	X			6-18885 MFD 137
14	4/10/86	1640/1645		X	outfall #2	1				X		6-18884 MFD 137

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible] Bernard Cousin	4/10/86				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6341

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: Ok 3549
PROJECT NAME: Fansteel Metals
SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Extractable	VOA's	Pesticides				REMARKS
07	4/10/86	1030 1320		X	Monitoring Well 18	10	4	6					6-18797 – 6-18800, 6-18805, 6-18806, 6-18804, 6-18801 – 6-18802, 6-18803 FC 140
07	4/10/86	1030 1320		X	Monitoring Well 18	4			4				6-18807 – 6-18810 FC 140

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature] [signature]	4/11/86 1600	Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				Air bill No. 891031761 ~~891-031-1783~~	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6 — 6342

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals

SAMPLERS: (Signature) Don Smith, Bill Park, Collin Platt, Bernard Cousin

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	Extractable	Pesticide				REMARKS
11	4/10/86	1630 1645		X	Background West 0-3"	4	X	X	X				6-18939, 618936, 6-18933, 618938 FC147
12	4/9/86	1630 1645		X	Background West 3"-6"	4	2	1	1				6-18900, 6-18930, 6-18928, 6-18929 FC148
14	4/10/86	1640 1645		X	Outfall #2	4	2	1	1				6-18886, 6-18888, 6-18887, 6-18882 FC1[illegible]
15	4/10/86	1630 1627		X	Outfall #3	4	2	1	1				6-18895, 6-18894, 6-18891, 6-18892

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Don Smith, Bill Park, Collin Platt, Bernard Cousin	4/11/86 1600	Federal Express Air Bill # ~~891031783~~	891031761		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6343

Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel metals
SAMPLERS: (Signature) James a. Trusley, Alice Chriss J

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	GC/MS extractables	Pesticides				REMARKS
25	4/11/86	12:30		X	Rinsate	2	X						6-19006 6-19007 FC-146
25	4/11/86	12:30		X	Rinsate	4		2	2				6-19003, 6-19004, 6-19005, 6-19002 FC-146
10	4/11/86	1105-1111		X	upstream Bkg	4	2	2	2				6-19032, 6-19033, 6-19034, 6-19035 FC 14[illegible]
10	4/11/86	1105-1111		X	upstream Bkg	2	2						6-19030, 6-19031 FC 14[illegible]
10A	4/11/86	1112-1118		X	upstream Bkg Soil	4	2	1	1				6-19025, 6-19026, 6-19028, 6-19027 F[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
James a. Trusley, Alice Chriss J	4/11/86 1600	Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Air Bill # 891031761 ~~891031783~~	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6344

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK 3549
PROJECT NAME: FANSTEEL METALS
SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	RADIOACTIVITY	FLUORIDES	AMMONIA	METALS & CYANIDES	CYANIDES		REMARKS
07	4/10/86	10:50 13:20		✓	MONITOR WELL #18	8	4	1	1	1	1		6-18791 6-18793 6-18788 6-18786 6-18792 6-18794 6-18795 6-18790 MFO 129

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4/11/86 16:00	FEDERAL EXPRESS			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks AIRBILL #898 [illegible] 1-772	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6345

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: FANsteel Metals
SAMPLERS: (Signature) [signature] FIT Team Leader

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	H_2O	Soil					REMARKS
2					MW 07	1	1						EPA Tag 6-18858
7					MW 18	1	1						EPA Tag 6-18925
9 & 9A					Downstream Arkansas River Webber Falls	5	4	1					EPA Tag 6-18842 - 6-18846
11					Background Soil (west)	1		1					EPA Tag 6-18937
12					Background Soil (west)	1		1					EPA Tag 6-18932
13 A					Outfall #1	1	1						EPA Tag 6-18923
14					Outfall #2	1		1					EPA Tag 6-18897
15					Outfall #3	1		1					EPA Tag 6-18889
~~16~~ Gen					~~P 10~~ Gen								
20					drainage path from basic pit	1		1					EPA tag 6-18952
21					French Drain	1	1						EPA Tag 6-18954
26					S. of Services Building	1		1					EPA Tag 6-18902
27					From tailing Chute pile	1		1					EPA tag 6-18904
28					SE Corner Landfill Pond	9	8	1 Gen					EPA tag 6-18906, 6-18849 &
"					"								6-18850 - 18856

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4/11/86 [illegible]	R L Naylor			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6346

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK 3549
PROJECT NAME: RANSteel Metals
SAMPLERS: (Signature) [signature] RIT Team Leader

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	H2O	Soil					REMARKS
29					SW Corner LF	1		1					EPA Tag 6-18908
10					Upstream	2	1	1					EPA Tag 6-19029 & 6-19017
					NOTHING FOLLOWS								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4/11/86 3:18 PM	[signature]			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6347

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: FANSTEEL METALS
SAMPLERS: (Signature) Bill Paul

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radioactivity	Metals	Ammonia	Fluoride			REMARKS
21	4/10/86	1620 1630		✓	FRENCH DRAIN	4	1	1	1	1			Tag #s 618953, 618959 618956, 618957 F-5243

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Paul		Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
				AIRBILL # 3697 28332 Lot #'s 65190102	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6348

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: OK3549
PROJECT NAME: Fansteel Metals
SAMPLERS: (Signature) [illegible] Allen Flatt

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Radionuclides						REMARKS
OT	9/10/86	1050-1320		✓	MW 18	4	4						6-18181, 6-18185, 6-18186, 6-18189 MFB152

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible] Allen Flatt	4/11/86 1700	Federal Express			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6349

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 6
First International Bldg., 1201 Elm St.
Dallas, Texas 75270

CHAIN OF CUSTODY RECORD

PROJ. NO.: 01T3549
PROJECT NAME: - Fansteel metals
SAMPLERS: (Signature) James A. Trusley, Alice Chress Jr

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals & Cyanide	Cyanide	Ammonia	Fluoride	Radioactivity		REMARKS	
1D	4/11/86	11:05 11:11		X	Upstream Webber Falls	8	2	1	1	4			6-19013, 6-19014, 6-19015, 6-19016 6-19018, 6-19019, 6-19020, 6-19021	MFD-132
1DA	4/11/86	11:12 11:18		X	Upstream BKG.	3	X	X	X	4			6-19023, 6-19024, 6-19022	MFD-147

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
James A. Trusley, Alice Chress Jr	4-11-86				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Air Bill # 891 031 772

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6—6351

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

April 11, 1986
(Date)

RECEIPT FOR SAMPLES

NAME AND TITLE OF EPA REPRESENTATIVE: Gene A. McDonald
FIT SAMPLE TEAM Ldr.
Gene A. McDonald
(Signature)

SAMPLES COLLECTED:

SAMPLE NUMBER	TIME	PLACE COLLECTED	TYPE	VOLUME	SPLIT SAMPLE REQUESTED	SPLIT SAMPLE PROVIDED
1		MW 15	H_2O	80 ML	Yes	No
2		MW 07	H_2O	6 gals	Yes	Yes
5		MW05	H_2O	80 ML	Yes	No
7		MW 18	H_2O	12 gals	Yes	Yes
9		Downstream	H_2O	6 gals	Yes	Yes
9A		Downstream	Soil	48 OZ	Yes	Yes
11		Background	Soil	48 OZ	Yes	Yes
12		Background	Soil	48 OZ	Yes	Yes
13A		Outfall #1	H_2O.	6 gals	Yes	Yes

ACKNOWLEDGEMENT OF FACILITY REPRESENTATIVE

The undersigned acknowledges that the samples described above have been collected.

NAME, TITLE AND ADDRESS OF FACILITY REPRESENTATIVE:

R. L. Kaylor
(Signature)

4/11/86
(Date)

DISTRIBUTION: One copy facility representative
One copy for inspector's records
Original to Regional Office

INCL 5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

April 11, 1986
(Date)

RECEIPT FOR SAMPLES

NAME AND TITLE OF EPA REPRESENTATIVE: Gene A. McDonald
FIT Sample Team Ldr.
Gene A. McDonald
(Signature)

SAMPLES COLLECTED:

SAMPLE NUMBER	TIME	PLACE COLLECTED	TYPE	VOLUME	SPLIT SAMPLE REQUESTED	SPLIT SAMPLE PROVIDED
~~13B~~ Not sampled		~~Outfall #1~~	~~Soil~~	~~48 OZ~~	~~Yes~~ ~~No~~	~~Yes~~ ~~No~~
14		Outfall #2	Soil	48 OZ	Yes	Yes
15		Outfall #3	Soil	48 OZ	Yes	Yes
16		P 10	Soil	48 OZ	~~Yes~~ Stay No	No
17		Near L3	Soil	48 OZ	No	No
18		Tank Farm	Soil	48 OZ	No	No
20		Drainage path	Soil	48 OZ	Yes	Yes
21		French Drain	H_2O	32 OZ	Yes	Yes
26		S. of Services Bldg	Soil.	8 OZ	Yes	Yes

ACKNOWLEDGEMENT OF FACILITY REPRESENTATIVE

The undersigned acknowledges that the samples described above have been collected.

NAME, TITLE AND ADDRESS OF FACILITY REPRESENTATIVE:

R L Naylor
(Signature)

4/11/86
(Date)

DISTRIBUTION: One copy facility representative
One copy for inspector's records
Original to Regional Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

April 11, 1986
(Date)

RECEIPT FOR SAMPLES

NAME AND TITLE OF EPA REPRESENTATIVE: Gene A. Mc Donald
FIT Sample Team Ldr.
Gene A. McDonald
(Signature)

SAMPLES COLLECTED:

SAMPLE NUMBER	TIME	PLACE COLLECTED	TYPE	VOLUME	SPLIT SAMPLE REQUESTED	SPLIT SAMPLE PROVIDED
27		N. of Chem C bldg.	Soil	8 oz	Yes	Yes
28		SE Corner CF Pond	water	6 gals	Yes	Yes
28		" " "	Soil	8 oz	Yes	Yes
29		SW Corner CF	Soil	8 oz	Yes	Yes
10		Upstream Soil	Soil	48 oz	Yes	Yes
10 A		Upstream H_2O	H_2O	6 gals	Yes	Yes

ACKNOWLEDGEMENT OF FACILITY REPRESENTATIVE

The undersigned acknowledges that the samples described above have been collected.

NAME, TITLE AND ADDRESS OF FACILITY REPRESENTATIVE:

R J Naylor
(Signature)

4/11/86
(Date)

DISTRIBUTION: One copy facility representative
One copy for inspector's records
Original to Regional Office

QA/QC SUMMARY

The data was found to be complete and acceptable. Nothing was detected in the lab blanks and the initial and continuing calibrations meet QC requirements.

The following items are to be noted.

Soil Samples Analyzed on 7/17/86

Spike recoveries: Antimony; the % recovery for antimony was 38%. Values reported for antimony are estimates.

Ammonia; the % recovery for ammonia was 15%. Values reported for ammonia are unusable.

Duplicates: Aluminum; the RPD for aluminum was 32%. Values reported for aluminum may be off as much as ± 1/3 of actual values.

Iron; the RPD for iron was 37%. Values reported may be off as much as ± 1/3 of the reported value.

High Hazard Soil Sample:

Spike recoveries: Antimony; the % recovery for antimony was 12%. Values reported for antimony are unusable.

Thallium; the % recovery for thallium was 14%. Values reported for thallium are unusable.

Barium; the % recovery for barium was 50%. Values reported for barium are estimates.

Ammonia; the % recovery for ammonia was 70%. Values reported for ammonia are estimates.

Duplicates: All duplicates are within QC limits.

Water Samples Analyzed on 7/21/86:

Spike recoveries: Barium; the % recovery for barium was 50%. Values reported for barium may be biased low and should be considered estimates.

Lead; the % recovery for lead was 65%. Values reported for lead may be biased low and should be considered estimates.

Seleium; the % recovery for selenium was 70%. Values reported for selenium may be biased low and should be considered estimates.

Thallium; the % recovery for thallium was 38%. Values reported for thallium may be biased low and should be considered estimates.

Duplicates: Tin; the RPD for aluminum was 21%. Values reported for tin may be off ± 20-30% of actual values.

Water Samples Analyzed on 7/17/86:

Spike recoveries: Aluminum; the % recovery for aluminum was 61%. Values reported for aluminum are estimates.

Iron; the % recovery for iron was 66%. Values reported for iron are estimates.

Manganese; the % recovery for manganese was 136%. Values reported for manganese are estimates.

Potassium; the % recovery for potassium was 132%. Values reported for potassium are estimates.

Soil Samples Analyzed on 7/21/86:

Spike recoveries: Antimony; the % recovery for antimony was 39%. Values reported for antimony are estimates.

Tin; the % recovery for tin was 63%. Values reported for tin are estimates.

Duplicates: Aluminum; the RPD for aluminum was 32%. Values reported for aluminum may be off as much as ± 1/3 of actual values.

Fansteel organic samples FC134-8, 40, 42-48, 50-54, 56, 57.

Soil surrogates:	Volatiles:	0-48 outside of limits.
	ABNs:	FC147 had 140% recovery of terphenyl-D-14. FC136 and FC150 had 130 and 125% recovery of 2,4,6-tribromophenol respectively.
	Pesticides:	0-9 outside of limits.
Matrix Spike Recoveries:	Volatiles:	0-10 outside of limits.
	ABNs:	0-24 outside of limits.
	Pesticides:	0-12 outside of limits.
Matrix Spike Duplicates:	Volatiles:	0-5 outside of limits.
	ABNs:	0-11 outside of limits.
	Pesticides:	0-6 outside of limits.

Calibrations and tunings were okay.
Blanks were okay.
Data looks good.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
HOUSTON BRANCH
6600 HORNWOOD DRIVE
HOUSTON, TEXAS 77074

Ref. Case No. 5720/SAS-B015F

Site Name Fansteel Metals

Date: 8-5-86

Subject: CLP Data Review

From: Kendall Young, Chief Laboratory Section; 6ES-HL

To: Keith Bradley, Hazardous Waste Section; 6ES-SH

A review of the laboratory raw data for the reference site has been completed by members of the Laboratory Section. Samples were:

INORGANIC:

ORGANIC:

2015-02	2015-10A	2015-16	2015-25
2015-07	2015-11	2015-17	2015-26
2015-09	2015-12	2015-18	2015-27
2015-09A	2015-13	2015-20	2015-28
2015-10	2015-14	2015-21	2015-28A
	2015-15	2015-24	2015-29

The data was found:

(√) Acceptable

( ) Provisional; use of data requires caution. Problems are noted in Review Summary.

( ) Unacceptable; data should not be used. Problems are noted in Review Summary.

Questions regarding the review can be addressed to me.

Attachments

cc: William Langley, 6ES-HL
Duane Geuder, WH-548A
CMD, Regional DPO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI
HOUSTON BRANCH
6608 HORNWOOD DRIVE
HOUSTON, TEXAS 77074

INORGANIC QC CHECKLIST

Site: FANSTEEL METALS

Contract No.: SAS 2015 F

Case No.: 5720 + SAS 2015 F

Contractor: ACCULABS

Reviewed By: M. EL-FEKY

Matrix: SOIL & WATER Low & Hi Conc.

Date: 8-4-86

Acct. #: _____ SF #: _____

Sample No.			
2015-02	2015-10A	2015-15	2015-21
-07	-11	-16	-24
-09	-12	-17	-25
-09A	-13	-18	-26
-10	-14	-20	-27

COMMENTS (To be completed by EPA Personnel)

1. Data Completeness	✓ Acceptable	Provisional	Unacceptable
2. Instrument Calibration Tune	✓ Acceptable	Provisional	Unacceptable
3. Interference Check Sample	✓ Acceptable	Provisional	Unacceptable
4. Blank Analysis	✓ Acceptable	Provisional	Unacceptable
5. Matrix Spikes	✓ Acceptable	Provisional	Unacceptable
6. Duplicates	✓ Acceptable	Provisional	Unacceptable
7. Field Blanks	✓ Acceptable	Provisional	Unacceptable
8. Other	Acceptable	Provisional	Unacceptable

ADDITIONAL COMMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
HOUSTON BRANCH
6608 HORNWOOD DRIVE
HOUSTON, TEXAS 77074

INORGANIC QC CHECKLIST

Site FANSTEEL METALS
Contract No. SAS 2015 F
Case No. 5720 + SAS 2015 F
Contractor Accu LABS
Reviewed By M. EL-FERY
Matrix Soil & WATER [Low & Hi Con
Date 8-4-86
Acct. # _____ -SF # _____

Sample No. 2015 - 28
-28A
-29

COMMENTS (To be completed by EPA Personnel)

1. Data Completeness	✓ Acceptable	Provisional	Unacceptable
2. Instrument Calibration Tune	✓ Acceptable	Provisional	Unacceptable
3. Interference Check Sample	✓ Acceptable	Provisional	Unacceptable
4. Blank Analysis	✓ Acceptable	Provisional	Unacceptable
5. Matrix Spikes	✓ Acceptable	Provisional	Unacceptable
6. Duplicates	✓ Acceptable	Provisional	Unacceptable
7. Field Blanks	✓ Acceptable	Provisional	Unacceptable
8. Other	Acceptable	Provisional	Unacceptable

ADDITIONAL COMMENTS